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HANDBOOK OF APPLIED PSYCHOLOGY

Volume Two

VOLUME TWO

Handbook of

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58. SERVICES OF THE SCHOOL PSYCHOLOGIST

GERTRUDE HILDRETH, PH.D.

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A child development philosophy has pervaded education in recent years with the result that the child, his rights and needs, have become the focal point about which instruction centers. Teachers and administrators have demanded more adequate knowledge for the guidance of individual children and have utilized the experience and skills of specialists in gaining a better understanding of each child's capacities and requirements as a basis for planning more effective learning experiences. As the leading specialist concerned with mental development, the consulting psychologist contributes to this program of the modern school.

THE SCHOOL PSYCHOLOGIST

The consulting psychologist who understands educational problems is equipped to share the tasks of child study and guidance with the teacher, and to assist the school authorities in revising the school program to fit the child's individual needs. His training and experience in clinical psychology, in diagnostic and remedial work, and in case study, give him the insight and technical skills required to perform the duties of an expert in educational guidance in which he cooperates with the school staff in interpreting the pupil and in redirecting behavior.

Requirements in training and experience for school psychologists are set forth in many states and communities by departments of education. In some instances specialization is required for work in a particular field, such as speech correction, parent counseling, or education of the mentally retarded. The leading training centers for school psychologists offer courses and give diplomas for specialization in these services. Then there are special requirements for psychologists in vocational schools, special schools and classes, nursery schools, and private institutions.

COORDINATION WITH INSTRUCTION

The school psychologist does not relieve teachers of the responsibility for knowing the individual child intimately, does not supplant the teacher or detract from the teacher's prestige or authority, but serves as an auxiliary staff specialist working in cooperation with the teacher and other staff members. Every school requires the services of specialists free from routine teaching duties, and teachers often need facts about children that only a psychologist can discover.

The school psychologist undertakes clinical case studies, diagnoses mental deficiencies, gives psychological tests, makes speech examinations, and draws up recommendations in the light of all findings. Because his services take him throughout the school system, he is in a position to understand the individual child with reference to the entire child population in the community. He is acquainted with the school and community resources for child welfare. He has an overview, such as no teacher or even school principal can have, that makes him well suited to be the liaison officer between principal, teachers, and parents in matters affecting child adjustment. It is in this manner that the consulting psychologist serves the modern school in the capacity of auxiliary staff specialist.

An Adjustment Teacher Service has been established in recent years in the Chicago Public School system. The auxiliary staff members offering this service are psychologists serving as consultants concerning problems of pupil adjustment. They work from a central office in the Child Study Department and are responsible to the head of that department. Their functions and services are described by Johnson (1937).

One psychologist alone cannot perform all the varied guidance functions in a city school system and few, if any, would be qualified to do so. But the smaller the school system, the more varied will be the functions of a school psychologist; the more of a "generalist" he must be. In the large school system, with many psychologists employed, he may serve as a specialist concerned with one or a few functions. The psychological services in the larger school system may be more effective for this reason.

STUDYING THE INDIVIDUAL CHILD

The school psychologist works with the individual child, appraising his capacities and achievements, talents and defects, and evaluating his ability to learn; discovering his interests; analyzing his personal and social adjustment with reference to his group, his teacher, and his family; understanding him in the light of his home and school experiences. The school psychologist determines the child's growth pattern, and observes his development in feelings of personal security, self-assurance, control of behavior, inventiveness, independence, and social contacts; in working habits, manual skills, and study skills; and in the acquiring of interests and the broadening of social understanding. The psychologist evaluates the child's motor responses, emotions, reading ability, language skills, and aptitudes in the arts. Special learning difficulties in reading, spelling, arithmetic, writing, English, foreign languages, high school subject fields, speech and handedness frequently engage his attention. He conducts and participates in intensive study of problem cases.

From all of this the school psychologist predicts the trends the child's behavior and personality may take in their development, and the possibilities of the child's success with the school program. Those who deviate widely from the norm in any direction require special educational provisions for their training. The determination of these provisions is also in part the psychologist's function.

EDUCATIONAL PROBLEMS REQUIRING PSYCHOLOGICAL SERVICE

Educational problems requiring the assistance of the school psychologist appear in every typical classroom. Several types of children presenting problems of learning and adjustment will be indicated briefly.

THE SLOW LEARNER, THE DULL AND MENTALLY RETARDED

The dull-normal child and even the potentially feeble-minded are too seldom understood in the classroom and at home. Although some of the brighter children in school are slow learners, the behavior and learning problems tend to fall in the 70-90 I.Q. range. A few illustrative cases will make this clear.

Ricardo is a boy of Italian descent, age nine, I.Q. of 88, who is now, after four years in school, only in the second grade. He is attentive, eager, willing to learn, but he is discouraged. He has been at a disadvantage both because of his mentality and because of his poverty-stricken background. His teacher says he is only lazy. Jim is the teacher's "pest." The rest of the children make mysterious circular motions about their heads, suggesting "nobody home," whenever J's name is called out in class. J must either stay in the principal's office most of the day, stand in the corner of his classroom, or miss most of his recesses. His teachers call him naughty. Another case is that of Molly, a pathetic little girl with an I.Q. of 60, unable to do anything well in contrast to normal children and apathetic about it. Her teacher calls her stubborn.

These are problems requiring adjustment of the curriculum to mental capacity, as are most problems of dull-normal children of whom too much is expected in a regular class. A simplified curriculum usually gives these children self-assurance, and "naughtyness," "lazyness," and "stubbornness" disappear.

BEHAVIOR PROBLEMS

Among the behavior problems confronting the psychologist in school are those involving truancy, delinquency, discipline, aggressiveness, quarreling, fighting, bullying, teasing, irritability, restlessness, anxiety, nervousness, hysteria, lying, stealing, premature sex experimentation, physical violence, bad language, tyrannical behavior, physical cruelty, and lack of confidence. Along with these problems it is found perhaps that the child is an only child, or the parents are overprotective: the parents and household may be discordant, or parents may be neglectful of their duties toward the child, and so on—factors which may contribute to the difficulty. By way of illustrating these behavior problems, let us consider a few.

Bucky is a seven-year-old in a southern school, who is already well confirmed in truancy. His father says, "Buck's a bad boy. He's no good." But the child is bright-eyed, alert, with a winning personality. He enjoys wandering about the docks, observing the big boats, enjoying the tales the seamen tell. Then there is ten-year-old Louis, aggressive, deceitful, troublesome, with a history of failure. His specialty is stealing milk bottles and turning them in at the corner grocery for one cent each. Carrie is a youngster who has been overindulged at home so that she invariably acts babyish in a crisis, does not accept responsibility at school, demands

inordinate attention, and requires constant supervision. The adolescent Marcia is unpopular with other children and says she has no friend but her dog. She protests that she hates the boys and girls in her class, but secretly she longs to be counted one of them.

Behavior and personality adjustment problems such as these are solved only through cooperation of home, school, neighborhood, and social institutions, and through the cooperative effort of specialists in schools and other institutions who are prepared to undertake therapy. The school psychologist functions in conjunction with the entire school staff in diagnosing and treating such cases. In working with problem children the school psychologist must become familiar with school attendance regulations, rules governing commitments to institutions, local child welfare provisions, and similar matters.

FAILURE IN SCHOOL SUBJECTS

Many fairly bright children have difficulty with learning assignments, particularly in certain school subjects.

Though bright enough mentally and with marked talent for drawing and construction work, Charles is already a reading failure at seven. Jennie does not seem to understand long division. Jane is a high school girl who persistently fails in mathematics. Her mother says, "It isn't that my girl can't learn mathematics. She can't progress at the rate the others do."

The teacher appreciates the skilled assistance the psychologically trained consultant can give such children in providing special techniques for their learning.

READING DISABILITY

The use of specialized techniques is illustrated in the study of reading difficulties. These difficulties are often associated with personality problems and may be complicated with additional disabilities, such as stuttering, laterality confusions, mental retardation, visual or auditory defect, and nervous tension.

Harry had almost all of these difficulties. At the age of eleven, he had failed year after year until he transferred to a school where psychological study was made of his problems. His mentality was investigated by means of the Stanford Binet Scale, the Doll Social Maturity Scale, and the Cornell Cox Performance Test. The combined findings indicated that he was at the dull-normal mental level. Visual efficiency was studied through the Betts Telebinocular Series. This test suggested that Harry had subaverage vision and he was recommended to an occulist for examination. Laterality of function was investigated through a handedness questionnaire. Tests of manual dominance including simultaneous figure copying with the two hands were made; the Manoptoscope and other sighting tests were used in the study of eye-dominance. Reading skill was so slight that there was little response to the Durrell Reading Diagnosis Tests. Informal tests with primary picture, word and phonics materials proved that reading achievement was no higher than the primary level. Reading consisted for Harry of ineffectual efforts to sound out a few simple words through half-hearted phonics attack and "spelling out." Reversal errors were common in writing and spelling. Harry's history disclosed a shift from left- to right-handedness, for writing only, in the first grade. In the formal program prevailing in Harry's school no account was taken of the child's laterality confusion. The boy began to stutter badly at age six. The father thrashed him for his failures at school, whereas the mother was overindulgent. A younger brother had in the meantime learned to read very well. With this constellation of conditions added to Harry's disabilities, the boy had become more resistant year by year, developing extreme dislike for reading and writing activities, playing truant frequently, and seeking satisfactions remote from school work.

Based on the above knowledge of Harry it was possible for the psychologist to outline an individual remedial reading program which by the end of the first six weeks enabled the boy to progress at the First Reader level. With this accomplishment there was a decided improvement in his attitude. By the end of the year Harry was reading fluently in third-grade material with keen enjoyment.

THE PHYSICALLY HANDICAPPED

The school psychologist is concerned likewise with psychological examination and educational guidance of the physically handicapped, which include the blind, the deaf, and the crippled, those with speech defects, aphasia cases, paralytics, apraxic, spastic, cardiac and pulmonary cases, and children with malnutrition. These cases in school situations may present psychological as well as medical symptoms requiring specialized educational as well as medical treatment. In the diagnosis and remediation of these cases the psychologist cooperates with school physician and nurse.

THE GIFTED CHILD

A common belief prevalent in educational circles is that gifted children take care of themselves. This statement is quite untrue. Though not so obvious as the retarded and not always so disturbing in the classroom, the problems of their adjustment are very real. Educational problems that the gifted present include: working below capacity, because they achieve results satisfactory to the teacher with little effort; development of narrow or one-sided interests, even intolerance for certain subjects; reclusiveness, because, often young for the school group in which they are placed, they have a difficult time being accepted socially by the other pupils.

The school psychologist gives teachers and parents insight into the capacities and potentialities of gifted children, and he recommends normally healthful means of development. This may involve a program for broadening interests. He indicates the injurious effects of overstimulation and suggests the importance of protecting the gifted child from exploitation.

Tommy illustrates the adjustment of a gifted boy to the modern school program. He entered the kindergarten at age four with a history of rapid development. When the examiner inquired how he had learned to write his name, he replied with an off-hand air, "Oh, I've known how ever since I was a baby." He could use fluently a foreign language in addition to English and showed delight in the classical literature his mother read to him. As he progressed through school the problems he would have encountered because of the fact that he was an only child and more advanced mentally than any other child of his age in the school were avoided. The psychologist and the teachers worked together in gaining insight into his particular needs. While others did their lessons, he worked at creative art, original literary compositions, directing dramatics, and helping other children with their school work. He recognized his limitations in physical skills as due to his relative youth. He learned to appreciate individual worth in the other children. No arrogance developed because of his own successes. With the progressive program in vogue in the school this boy has developed a well-rounded personality and varied talents.

When the problems of the deviate child necessitate comprehensive case studies, the school psychologist is prepared to organize such studies and to participate in case study conferences attended by teachers and other members of the school staff, and welfare workers or others who are familiar with the situation.

PSYCHOLOGICAL TESTING AND EXAMINATION TECHNIQUES

The consulting psychologist who works in the school system has at his command a wide repertory of skills and techniques for psychological examination, which are adapted to the various problems with which he deals. School psychologists are sometimes best known for their work with standard psychological tests, such as the Stanford Binet, the Wechsler-Bellevue, and the Arthur Performance Scale, yet standard tests represent only one of many appraisal techniques among those employed in studying school children.

The techniques used vary with the situation of their use. The school psychologist may use controlled observation, as in an experiment, to examine certain behavior problems. Time sampling of individual performances is a useful observation technique. Informal observation is made of the behavior of children on the playground or on an excursion. The school psychologist interviews and holds individual conferences. He uses so-called projective techniques such as play therapy, the Rorschach and Sentence Completion Tests. Children may be asked to write out their memories and experiences, to draw freely or to draw stated subjects, to fill out questionnaires or check lists. Use is made of rating scales of performance or behavior, and diary and anectodal records. To picture the case fully, diagrams of the child in his social relationships, records, summaries, and profiles are made from the results of psychological examination. Therapy and remedial techniques recommended from this record are adapted to the learning and school adjustment problems disclosed.

TESTS

The psychologist makes extensive use in pupil study of standardized testing. The advantages of the test method are that it is objective, impersonal, reliable, accurate, and time saving, and affords normative comparisons. By using group tests, facts can be obtained quickly for large school groups. There is no need to wait for the end of the term to appraise certain characteristics of the pupils. Tests help to determine for the individual child his position in the range of individual differences, that is, the amount of deviation an individual shows from the average; the variability in his position in the range

of individual differences for various tested traits, that is, his many-sidedness in character; and prediction of growth trends.

Test scores afford a sound basis for remedial procedure. Tests of intelligence, scholastic and mechanical aptitude, psychomotor abilities, music, and language explore the individual's potentialities and offer objective records of them. Through the use of tests the school psychologist is able to note in standard situations how the child explains his failures and how he meets difficulties. But it is not the absolute test scores, the differences they indicate, or the remedial recommendation from them that is of greatest importance in the use of standard tests. What is most important is the interpretation of test results in terms of the child's background, history, environment, training, culture media, physical factors, teacher relations, parental relations—in a word, his whole adjustment environment—for guidance of individual pupils. School psychologists use tests to supplement other information and judgment concerning the child.

THE ADJUSTMENT ENVIRONMENT

It is evident from this that the adjustment environment must be made the subject of major psychological study. The entire life of the school makes a contribution to pupil adjustments.

PROMOTING PUPIL-TEACHER RELATIONSHIPS

Pupil-teacher relationships are an important factor in the adjustment environment of a child. Through interviews and conferences the psychologist discovers the cause of teacher-pupil conflicts. He helps teachers and the school authorities to understand the individual child, his potentialities and behavior. He makes practical suggestions that will assist the teacher to solve pupil problems more effectively, and advises teachers concerning the measures to be taken to insure improved learning and adjustment for every child. The facts about the child, his abilities, his position in the class group, and his relations to other children are presented to teachers as objectively and graphically as possible.

CURRICULUM ADJUSTMENT

The psychologist assists the teachers and school authorities in adapting the curriculum to those cases having special educational requirements. Flexibility in curriculum adjustments is recommended so that each child can make his contribution to the group, yet make it in individual terms. Problems of slow learners are likely to be improved by placing the child in a special class or group with a curriculum modified according to his needs.

The psychologist recommends and checks on educational programs for the handicapped, aids in reclassifying the mentally retarded, gifted, handicapped, or problem cases, and assists in organizing special or corrective classes and developing improved instructional materials for deviates and learning misfits.

Flexible subgrouping within regular classes can be arranged so that instruction is better adapted to each child. The psychologist works out remedial procedures for slow learners and disability cases, supervises remedial work in skills, helps teachers set reasonable goals of attainment for individual pupils, and evaluates the effects of specific educational provisions for each child.

KNOWING THE CHILD THROUGH RECORDS

The psychologist assists the school in maintaining for each child a cumulative record to be used for both service and research purposes. Modern schools begin very early to construct this cumulative picture of each pupil, rather than waiting until the child is a confirmed behavior problem. These records and reports are so organized that the pupil can be evaluated in terms of his entire developmental history.

One parent asserted that his child had made no progress during the year. He was shown the records in the psychologist's office indicating the child's progress. Although the child's capacity was relatively low, his accomplishment quotient was high. He was functioning near par, though this meant lower absolute achievement than that of others in his class.

A teacher ordinarily knows a pupil through first-hand contact only for the brief period the child is in the teacher's class. The psychologist, however, can keep in close touch with the pupil all the way through school. One of the psychologist's functions is to convey the fullest possible cumulative picture of the pupil to each teacher in turn, and to make a continuous record of the child's progress through the school.

PROMOTING HOME-SCHOOL RELATIONS

The psychologist furthers home-school relationships through parent conferences, by advising teachers in matters that concern the child and his home, and by assisting teachers in their reports to parents. He helps

the teacher construct informative, intelligible, and comprehensive report cards that reveal in concrete objective terms the child's development and progress at school. These reports aid the parent in understanding the school's program and what the child has accomplished with reference to it.

School psychologists work with parents through individual conferences and through the medium of parent-teacher groups. Parents ask most frequently for help in problems of discipline, establishing study and work habits, teaching orderliness, imparting sex information, guiding social adjustments and behavior, and understanding norms and goals of child development. They require assistance in problems of speech defect, and in understanding special abilities and disabilities. Often these problems involve such matters as the only child, child jealousy within the family group, the spoiled child, the tired child, and nervous mannerisms. The psychologist can often be of service in helping parents with guidance problems of younger children who are not yet in school.

READING REFERENCES

Cason, Eloise B., "Some Suggestions on the Interaction between the School Psychologist and the Classroom Teacher." *Journal of Consulting Psychology,* 1945, **9,** 132–137.

Cornell, E. L., "The School Psychologist's Contribution." *Yearbook of Elementary School Principals,* 1936, **15,** 561–566.

Flemming, Cecile W., *Pupil Adjustment in the Modern School.* New York: Teachers College, Columbia University, 1931.

Hildreth, G. H., "Guidance in the Lincoln School." *Teachers College Record,* 1936, **37,** 432–440.

———, *Psychological Service for School Problems.* Yonkers-on-Hudson: World Book Company, 1930.

Johnson, William H., "Adjustment Teacher Service in the Chicago Elementary Schools." *Elementary School Journal,* 1937, **38,** 264–271.

59. SCHOOL CLASSIFICATION

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UNGRADED VERSUS GRADED SCHOOLS

In the early history of education in America, school classification was not a problem. Schools were ungraded, and students proceeded at their own rate through the meager curriculum of those days.

Theoretically, the organization of those early schools—long before there was a psychology of education—was from a psychological point of view not entirely undesirable. A complete and universal application of the psychology of individual differences would lead inevitably to the abandonment of classification, except for temporary grouping in order to carry on activities in which the social element is important.

No two individuals, not even identical twins, are exactly alike by the time they reach school age. Many thousands of test records have gone across the desk of the writer in the last ten years. He cannot recall ever having observed two individuals who were exactly the same in scores on a comprehensive battery of tests. This is true even when allowances are made for the error of measurement in the test scores.

By the same sign, it is doubtful if a given educational environment of methods and materials is ever equally appropriate for any two individuals. If the number of pupils is increased to forty, the average class size in many large schools, the possible combinations of variables in the group become astronomical. The best instruction under those conditions is a kind of compromise aimed at the central tendency of the group, with such recognition of individual differences in capacity, background, and interest as can be provided under the limitations of a crowded class hour.

Schools occasionally rebel against this kind of restriction upon dynamic teaching, as witnessed by the rise about 1920 of the widely heralded "Dalton

Plan" and the "Winnetka Plan" of individual instruction. But in a system of universal education, or any educational system which includes large numbers of pupils, classification is inevitable in the great majority of schools. Not only is it inevitable, but practically it works out a great deal better than would be predicted on the basis of data concerning individual differences. In any school class there are many similarities in the background, understanding, interests, and attitudes of the pupils even though the individuals may cover a wide range on any measured characteristic. Moreover, the adaptability of the individual child—his tolerance for content and procedures not ideally adjusted to him—is great. There will always be a few extreme deviates who will not fit into any plan of grouping. But, on the whole, a flexible scheme of classification, applied in a way that never loses sight of the individual and with the full cooperation of the entire faculty, including psychologists and guidance specialists, can be made to take care of the needs of nearly every normal child.

CHRONOLOGICAL-AGE BASIS OF CLASSIFICATION

The traditional way of classifying pupils at the time of school entrance is by chronological age. Parents are required by law to send their children to school after they reach a certain chronological age, which is customarily six years. Schools may admit pupils less than six years of age, but as a rule they allow entrance to the first grade only to children who are at least within two or three months of the sixth birthday. Too infrequently is consideration given to any basis other than chronological age, such as the mental or social maturity of the child.

If there were no differences among individuals who had lived equally long, or if such differences were confined to a small range, chronological age would be a very satisfactory basis of classification, for it is simple and democratic in application. However, there are, not only extremely large differences among individuals, but there is also great intra-individual variability. It is usual for an individual to be relatively stronger in some areas of learning than he is in others, and in a typical class group there are likely to be almost as many patterns of strength and weakness as there are individuals. According to Garrett (1941), there is some evidence that intra-individual variability increases with chronological age, although other studies, including one by Swineford (1948), have failed to substantiate this finding.

Regardless of the influence of maturity on intra-individual variability, intragroup differences, expressed in absolute terms, do increase with chronological age. In a class of kindergarten or first-grade children, individual differences, although relatively large, are rather small when expressed as absolutes. But if the relative relationships are maintained as the class progresses upward through the grades, the absolute values of the differences are constantly expanding. For example, two children exactly six years of age whose intelligence quotients are respectively 90 and 110 have mental ages of approximately five years, five months and six years, seven months, a difference of about one year, two months. But if it is assumed that intelligence quotients remain fairly constant under constant environmental conditions, these two pupils when they reach a chronological age of twelve years will have mental ages of approximately ten years, ten months, and thirteen years, two months respectively. This is a difference of about two years, four months, or twice the difference at age six.

Because of the large and, in one sense, expanding differences among individuals, chronological age, which is a fairly uniform basis of classification at school entrance, does not long remain a basis for grade placement except in those few schools where an attempt is made to promote everyone. Some pupils are accelerated, and a much larger proportion of the dull pupils are failed, so that by the time Grade VI is reached it is common to find that the pupils within a class cover a chronological age range of four years or more.

AGE-GRADE STUDIES

Although some attention was given to conditions of retardation among school children as early as 1895, it was about 1910 when the first reliable research in school progress was undertaken. Studies by Witmer (1910), Thorndike (1910), Ayres (1909), Strayer (1911) and others focused attention upon school classification and brought to light an extensive amount of retardation in our schools.

During the next decade, these pioneer studies were followed by numerous statistical reports emanating from many different school systems. School superintendents began to include age-grade studies as a part of their annual reports, and the technique of these studies was extended and somewhat improved in connection with the many school surveys undertaken during that period. Similar studies, with

gradually refined technique, continued to appear during the next two decades. The earlier studies were concerned mainly with the facts pertaining to the relation between the ages and the grades of school children, whereas the later studies have tended to consider other factors such as mental age, educational age, ability grouping, and curriculum adjustments.

The value of age-grade studies has been somewhat impaired by lack of agreement on certain questions and lack of comparability in procedures. There has not been agreement concerning what constitutes normal age for a given grade, and thus reports from different sources on the relative percentages of overage, normal, and under-age pupils have not meant the same thing. Many investigators have employed a two-year normal age span; others have used a one-year span; and still others have proposed a three-year span.

Nevertheless, some important findings relative to school classification have grown out of the age-grade studies. Regardless of differences in procedure, the early studies gave a general picture of much retardation and human waste in our schools and great variation in percentage of retardation from school to school. For example, Volkmor and Noble (1914) found that in eleven cities in 1912 retardation ranged from 8.2 to 63.1 per cent, and Cooke (1931) in an extensive study of fifty-nine school surveys from 1908 to 1928, involving two and one-half million pupils, found a total of 21 per cent accelerated, 48 per cent normal, and 31 per cent retarded.

Closely related to the problem of retardation is that of elimination from school. As early as 1920, surveys showed that nearly all native white children who entered school survived to the fifth grade, and then dropped out of school in increasing numbers through the remaining elementary school, high school, and college grades (Ayer, 1933). In later years, attendance laws and employment conditions have caused the holding power of the upper levels of the school to be somewhat greater than it was earlier. As Counts (1922) and others have shown, two very important factors in the elimination of pupils are intelligence of the individual and economic status of the family.

More recent school progress studies (Boyer, 1937; New Jersey Elementary Principals Association, 1936) have indicated increasing flexibility in promotional plans and decreasing percentages of overage pupils in the elementary schools, although they have not revealed a corresponding decrease in overageness in secondary schools. These studies have also shown an increasing awareness of the importance of an assessment of individual differences and the application of individual guidance procedures. Trends in research in this field have been well summarized by Boyer (1939) as follows:

> Research studies in the field of school progress showed recognition of the fact that mass progress can come only as detailed techniques are perfected for advancing the development of each pupil. Studies of school progress made their original contribution by disclosing failure and educational waste. It was in the recognition of this waste that personnel work, guidance, and counseling were born. Recent school progress studies have appropriated the techniques of guidance and counseling in their emphasis upon the unique qualities of each individual. General school progress is based on the best possible adjustment of each individual.

BASES OF GRADE CLASSIFICATION OTHER THAN CHRONOLOGICAL AGE

The instructional difficulties, retardation, and pupil elimination resulting in part from classification procedures that take their beginning from chronological age have led to a search for other bases of classification. Various qualities and combinations of qualities have been used in experiments with new classification procedures.

MENTAL AGE, INTELLIGENCE QUOTIENT, READING, AND ACHIEVEMENT AGE

From time to time different persons have advocated classification according to mental age or intelligence quotient or achievement age. Still others, observing that one kind of achievement, reading, is especially important in school work, have suggested reading age as an appropriate classification criterion.

Difficulties, however, have arisen with each of these bases when attempts have been made to apply it as the sole criterion. Mental age, assuming that the measurement is accurate, indicates the stage of mental development reached at a particular time, but it does not show brightness or capacity to learn. Thus, if all pupils in a certain school having a mental age of 10 years were grouped together, they would for a short time have about the same learning capacity, but the younger members of the group would grow more rapidly in mental ability, and the

older ones would grow slowly so that as time went on large differences in capacity to learn would emerge, and reclassification would be needed.

It is clearly evident that intelligence quotient alone would be a most unsatisfactory basis of classifying the pupils in any school. The I.Q. shows brightness, or potentiality for mental growth, but it provides no indication of mental status. A seven-year-old pupil with an I.Q. of 130 is below the mental level of an eleven-year-old pupil with an I.Q. of 85. Pupils classified according to I.Q., without regard to other factors, would be so heterogeneous in mental maturity that instruction would necessarily be largely individual, and they would perhaps be even more heterogeneous in social maturity.

Classification on the basis of over-all educational age resulting from a comprehensive achievement test battery would be approximately equivalent to classification on the basis of mental age and would be open to the same limitations. As Kelley (1927) showed years ago, an intelligence test and a general achievement test measure almost the same thing, even though they are called by different names.

Because of the close relationship between reading ability and success in many school subjects, the use of reading ability as the basis of classification may seem at first thought expedient. However, it is known that the number and spatial factors are relatively independent of the verbal factor (Thurstone, 1938), and thus pupils well classified according to ability in those verbal subjects where reading is important, may be very poorly classified in another area such as mathematics, in which success is heavily dependent upon number and spatial ability. Moreover, corrective or remedial procedures may significantly affect reading achievement of individual pupils and thus invalidate classification based on measurement of reading ability. A further limiting factor is that reading age is derived from a composite score which includes elements of rate, vocabulary, and various comprehension skills. Two pupils with the same reading age may actually differ greatly in their achievement in different aspects of reading.

As long ago as 1926, Corning (1926) pointed out that no one basis of classification was satisfactory. He urged the use of a combination of mental age and intelligence quotient as the basis of division. His rule governing the procedure in a large percentage of the cases was to classify vertically by mental age and then horizontally by intelligence quotient. Although he recognized that no rule could be applied automatically to all children and that many cases must be dealt with individually, it is doubtful whether Corning's procedure gave enough attention to considerations of health, social maturity, school history, and home conditions.

FORMULAS FOR GRADE CLASSIFICATION

Realization of the need for an improved basis of classification, associated with an awareness that dependable classification takes its origin from more than one factor, has led other educators to search for well defined procedures that lend themselves to mathematical or graphic representation. McCall and Bixler (1928) set forth a classification plan based upon objective testing. They proposed detailed procedures designed to help teachers translate crude scores on tests into G scores, or grade scores, combine two or more G scores in the same subject with appropriate weighting, and prepare class record sheets. Allen (1935) developed the Providence Class Personnel Chart as a graphic aid to principals, teachers, and counselors in considering problems of classification in the light of individual differences. It was based on chronological age, mental age, intelligence quotient, and the achievement goals of the individual and class. It was so arranged that suggestions were automatically made concerning classification and guidance procedures to be used with pupils falling in different areas of the chart.

In recent years, the trend has been away from the use of completely objective and relatively inflexible bases of classification and in the direction of greater use of a combination of the kinds of information about each individual that are to be found in a cumulative record. Consideration is given especially to chronological age, mental age, intelligence quotient, achievement grade level, social maturity, health, home background, and personality.

GROUPING OF PUPILS AT A SINGLE GRADE LEVEL

Similar to the question of the class or grade level to which each pupil should be assigned is the question of ability grouping at a given level. Since the development and wide use of intelligence and achievement tests, many medium-sized and large schools have practiced grouping their pupils in each grade into fast, average, and slow sections. The main advantages claimed for ability grouping are: (1) if the range in ability within a class is reduced, the teacher can plan instruction that is more nearly in line with the ability

of each pupil in the group than he can when the range of ability is very wide; (2) the amount of ground to be covered can be modified in the light of the capacity of the pupils to learn readily and to do extensive reading assignments; and (3) the pupils will take greater interest and put forth more effort when they study with, and are in a sense in competition with, their peers than they will when individual differences are so great that some pupils will not be expected to keep up with the others.

On the other hand, several limitations are pointed out by the critics of ability grouping. It is said (1) that ability grouping is undemocratic; (2) that the slower pupils need the stimulus that comes from association with more able minds; and (3) that regardless of labels attached to ability groups, the nature of the grouping is always apparent to the pupils with attendant lowering of morale and development of feelings of inferiority on the part of those placed in the slow sections.

The question of ability grouping is therefore not a matter of administration and curriculum construction alone. It has its roots in sociology, psychology, and philosophy. The publication in 1936 of Part I of the *Thirty-fifth Yearbook of the National Society for the Study of Education* made available a comprehensive and detailed report based on careful consideration by a national committee of the numerous and complex factors in the question. While complete unanimity of opinion was not to be expected, the Yearbook showed clearly that the committee found that higher achievement was to be expected when pupils were properly grouped. There was fair agreement that ability groups should be formed on the basis of measures of mental ability in combination with chronological age and with other factors taken into consideration in individual cases.

Notwithstanding the tenor of this report, many schools have in recent years avoided the practice of sectioning grades into definite ability groups. Rather, they have assigned pupils to class sections at random and have depended upon the ability and initiative of the teachers to set up within each class temporary ability groups as needed and to individualize instruction as far as possible within the class. In certain residential areas and in independent schools, where classes are relatively small and the population somewhat more homogeneous than it is in large urban schools, this more informal type of arrangement may be preferable to ability grouping throughout the school.

In a complex metropolitan environment, however, particularly at the secondary school level, ability grouping may be the only way of reducing the range of ability in class groups drawn from the large and heterogeneous population sufficiently to make it possible for teachers to plan courses and gear instruction even approximately near the ability level of the majority of the pupils.

INTERAGE GROUPING

It must be conceded that the classification of pupils into grades and the grouping of pupils at a given grade level into class sections is an artificial arrangement dictated solely by the need to facilitate instruction and learning. The natural social group outside the school more often than not covers a wide age range.

In contrast to the tendency to classify pupils into grades and to subdivide grades into ability groups, experimentation with interage grouping is being carried on in a few schools. For example, one such study took place in 1946–47 in the Horace Mann-Lincoln School in New York City with a group of sixteen children from age eight through eleven. While no formal report of findings has been made, the results were sufficiently promising to warrant plans to set up two such groups during the school year, 1947–48. The success of such experiments in the breaking down of lockstep education depends in large measure upon the ability of the teacher to assess each individual pupil, to integrate his activities with those of the group, and to provide him with individual guidance and help as needs arise.

AUTOMATIC PROMOTION

Some schools have endeavored to meet those aspects of the classification problem which involve promotion by making promotions automatic. For instance, in a study of the practices in twenty-four cities of more than 100,000 population, Hildreth (1939) found that promotion was automatic in three cities, partly so in five, and not automatic in sixteen. Similarly, Saunders (1941) found that many school superintendents believe in universal promotion, although comparatively few practice it.

There are two main points in favor of automatic promotion. One is that this plan fosters the personality integration of the individual pupil in that it avoids confronting any pupil with academic frustration and failure. The other is that universal promotion helps keep pupils of the same chronological age

together, and thus tends to reduce the social maladjustment that is liable to exist when over-age pupils are repeatedly failed. While these arguments carry considerable weight, it may be pointed out, on the other hand, that avoidance of failure may not be the best way of developing a well adjusted personality capable of standing up under the disappointments and failures which come to almost everyone in life situations, and that there are wide differences in social maturity even among pupils at the same age level.

The desirability or undesirability of automatic promotion depends in the last analysis upon what the school does to adjust its curriculum to take account of individual and group differences. Universal promotion and the maintenance of the same curriculum for all increase the heterogeneity of ability at the upper grade levels and make it more and more difficult for the teachers to set up efficient learning situations. But if the curriculum is varied to take account of the increasingly great absolute differences among individuals at a given grade level and if individuals are carefully placed according to their ability, it may be possible to obtain better results at the lower end of the mental ability scale under this plan than under any other promotional scheme. Ability grouping within grades and corresponding adjustment in instruction would seem to be a *sine qua non* of a universal promotion plan.

RELATION OF MODERN MEASUREMENT AND RECORDING PROCEDURES TO CLASSIFICATION

Perhaps the most important instrumentalities in the accurate classification of school pupils are a comprehensive testing program and a well-planned system of individual cumulative records. In order to make reliable placement of a pupil in a group, one must have valid information both concerning the individual being placed and concerning the individuals already in the group.

ENTRANCE TESTING AS A BASIS OF CLASSIFICATION OF NEW PUPILS

Secondary schools and especially colleges are making increased use of entrance tests, partly as a basis of selection, but what is more important, for purposes of placement of new students. Through a few hours of entrance testing much information can be obtained concerning a student's aptitudes in several broad areas, such as verbal, number, spatial, and reasoning ability, his achievement in basic areas of learning, such as English and mathematics, and his educational and vocational interests. The results of these tests are of great assistance to the institution in advising entrants concerning courses and in placing them in class sections. In this way, helpful steps are taken to forestall failure and to promote adjustment from the very beginning of the student's contacts with the institution.

SYSTEMATIC TESTING AND RECORDING

Although entrance testing can be very helpful to the students and the faculty of a school or college, an even more valuable program is to be found in the systematic annual or semiannual use of comparable tests and in the regular recording of the results of such tests, along with other information, on a comprehensive cumulative record form. The data thus accumulated are of inestimable worth in classification, for they not only indicate the status of an individual at a given time but also permit inferences concerning growth from year to year and therefore serve as a dependable basis of prediction of future accomplishment.

Perhaps the most extensive and thorough system of cumulative records generally available to the schools and colleges is the series published by the American Council on Education (1943). These forms consist of separate folders for the primary grades, intermediate grades, junior and senior high schools, and college. A detailed manual of instructions accompanies each form. These records stress especially test results and behavior-description data.

THE GUIDANCE PROGRAM AND SCHOOL CLASSIFICATION

In order to reach their greatest effectiveness in school classification procedures, testing programs and cumulative records must be a part of a well organized guidance program. The guidance movement in our schools probably derived a greater share of its impetus from a recognition of inadequacies in classification, with accompanying retardation and elimination of pupils, than from any other source. The adjustive and vocational orientation functions of personnel work would now be a sufficient reason for the existence of guidance programs, but broadly conceived school classification remains at the center of both of these functions. Without satisfactory classification procedures, neither personal and social adjustment nor adequate vocational preparation is possible. The guidance program and the program of school classi-

fication are clearly supplementary. In the modern school, the two function as a unit in providing under group conditions an educational environment that takes account of the abilities, needs, and long-term goals of individual pupils.

READING REFERENCES

Baker, G. Derwood, "Individualizing Instruction in the Junior High School." *Harvard Educational Review,* 1938, **8**, 495–506.

Boyer, Philip A., "Pupil Personnel, Guidance and Counseling," Chap. 2, B, "School Progress." *Review of Educational Research,* 1939, **9**, 168–172.

Cook, Walter Wellman, *Grouping and Promotion in the Elementary School.* Minneapolis: University of Minnesota Press, 1941.

DeSilva, L., "Promotion and Placement of Pupils in the Elementary School." *California Journal of Elementary Education,* 1945, **14**, 117–123.

McCall, William A., and Harold H. Bixler, *How to Classify Pupils.* New York: Teachers College, Columbia University, 1928.

National Society for the Study of Education, Warren W. Coxe (ch.), *Thirty-fifth Yearbook: Part I. The Grouping of Pupils.* Bloomington, Ill.: Public School Publishing Company, 1936.

New Jersey Elementary Principals Association, "A Study of Pupil Failure in New Jersey." *Elementary School Journal,* 1936, **36**, 493–496.

Saunders, Carleton M., *Promotion or Failure for the Elementary School Pupil?* New York: Teachers College, Columbia University, 1941.

60. PRINCIPLES OF CHILD GUIDANCE

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Child guidance, as the term is generally used, has two distinct meanings: prophylactic, or preventive, and corrective. Prophylaxis, or prevention, refers to the guidance of mothers and others who have the responsibility for the rearing of children by interpreting children's behavior and by offering suggestions for the wise handling of children so that the need for corrective measures will not arise. The corrective aspect refers to the study and treatment of children who present problems. This section is devoted chiefly to the corrective aspect of child guidance.

INDIVIDUAL GUIDANCE

Child guidance, whether preventive or corrective, cannot be reduced to a set of rules. Each child presents unique problems, depending upon the circumstances in which he has developed and the personality which has been formed. One who deals with problems of children by the application of general rules faces failure and disappointment. There is no substitute for an intimate knowledge based upon careful study of the individual child. Child behavior may signify different things for his adjustment according to the special circumstances in each particular case. For this reason, training in child guidance requires practical experience, for it is only through the study of numbers of children that one develops understanding of the problems which they present.

CRITERIA OF TREATABILITY

In recent years experience has been accumulating to serve as a guide for the chances of success in the treatment of problem children in the child guidance clinic. (Witmer and Students, 1933; Witmer, 1933; Miller and Richards, 1933; Levy, 1937; Powdermaker, Lewis, and Touraine, 1937; Allbright and Gambrell, 1938; Kleinberg, 1940; Bennett and Rogers, 1941.) These criteria refer in part to elements in the child's personality and in part to elements in his environment, particularly the family situation and its relationship.

GOOD RISKS

In general, children who respond most favorably to treatment are those (1) who actively want assistance, (2) who have some personal initiative and take responsibility, (3) whose difficulties are subjective fears, worries, and obsessions, (4) whose aggression is focussed on particular objects or persons, (5) who are timid and retiring, (6) who persist in the face of frustration, (7) who are accepted by one or both

parents, (8) whose parents are well adjusted personally, and (9) whose parents have achieved satisfactory marital adjustment.

POOR RISKS

On the other hand, children are poor risks and respond unfavorably to treatment (1) who are uninterested, or anatagonistic to it, (2) who express difficulties by overt behavior, (3) who are extremely aggressive and hostile, (4) who are hyperactive, (5) who present a variety of behavior disorders, (6) who avoid meeting frustrations or difficulties, (7) who are rejected by their parents, particularly the mother, (8) who have to endure excessive love or hate from the parents, (9) whose parents use them as substitutes for their spouses in deriving emotional satisfaction, (10) whose homes are inharmonious, and (11) who are mentally retarded.

To the beginner in child guidance the shy, retiring child is one of the most difficult with whom to deal. There seems to be no bridge of contact. But one only needs patience, sometimes a large dose, friendliness which is not overbearing, and a willingness to wait. Little by little the timid child will dare to express himself and frequently this is all that is necessary for treatment. On the other hand, the hyperactive, aggressive child who seems to respond so readily may use his activity as a barrier and protection against the encroachments of a relationship which is the *sine qua non* of treatment.

GAINING THE CHILD'S COOPERATION

One must have the child's cooperation for successful treatment. The child should come for help voluntarily, if not at first, certainly before treatment has proceeded very far. Most children are brought for guidance by their parents and are taken into the clinical situation without their active cooperation (Blanchard, 1940). It is remarkable how readily some children will respond to the overtures of the counselor and enter into treatment without protest, apparently partly aware of the significance of the experience. In the school it is also true that the psychologist can be of little help until the child comes to him voluntarily. It is part of the task of the teacher to persuade the child to go to the psychologist for help.

At the beginning of the first contact between counselor and child, it is well to have a common understanding as to the purpose of the visit. It would be helpful if parents or teachers would be open and frank with the child and tell him where he is going and why. Generally, parents show their own insecurity with their children by failing to explain to them the nature of the visit they are making. A good deal of the difficulty would be solved in many cases if parents would tell the child of their concern over his problems and how they are trying to find assistance in dealing with them. But parents whose relationships with their children are direct and open probably have fewer child guidance problems.

HANDLING THE CLIENT'S INITIAL RESISTANCE

Children who come to the psychologist against their wishes must be helped to overcome their resistance before treatment can proceed. The psychologist would do well in these cases to drop any diagnostic measures that he is using and to deal with the resistance directly. This is accomplished by openly discussing with the child the reasons for his coming and the nature of his resistance—why he does not want to come. Results will be most satisfactory if the child can be perusaded to formulate his own reasons. They sometimes lose their force when they are discussed. But where there is reticence, sullenness, hostility, or extreme fear, sometimes the psychologist must propose possible reasons and encourage the child to talk about them. Perhaps the child is ashamed of his problem; perhaps he fears the consequences of self-revelation; perhaps the counseling session is interfering with other activities that for the time being are more important to the child. Whatever the resistance, it should be discussed with the hope that it will dissolve naturally.

When an appointment is missed it suggests resistance. Parents frequently stay away on the second, third, or fourth appointment, giving as an excuse that their child has a cold or that they are prevented from bringing him in for an equally plausible reason. This usually happens after the parent has revealed certain personal data and feels uncomfortable and guilty about it, or dreads the personal relationship with the counselor which seems to be developing. The reasons given for staying away may be real, but one may suspect that they are rationalizations.

When an appointment is broken, a cordial note or telephone message may be sent offering to schedule another appointment; if there is a series of broken appointments, the client may be invited for a conference so that there may be a chance to establish mutual understanding. Naturally, if a counselor has some personal interest in the progress of the case, he will do what he can to persuade the parents to continue treatment. But, in general it is not con-

sidered good policy to pursue a case when the case contacts are obviously meant to be discontinued.

CHANGING PERSONALITY A SLOW PROCESS

Whether the child is amenable to treatment or not, it is not to be undertaken lightly. To accomplish real personality change—new attitudes, new points of view, the dissolution of fears or obsessions, a gain in belief in the self—is difficult and comes slowly. Sometimes change and recovery seem to come spontaneously, but most readjustment is slow and gradual, and the results are seen only after weeks and months of patient and intensive effort. Children have been several years in developing the personalities they bring to the counseling situation, and it is only natural to expect that the process of change should be slow in like degree. Child guidance is time- and energy-consuming; one should not expect miracles to happen in one or two interview sessions.

OTHER SPECIALISTS

A psychologist should be quick to refer a child to an expert in another field if he feels he is not qualified. Any suspicion of a physical involvement should be referred to a physician. Indeed, the psychologist working independently should refer all cases to a physician for a physical checkup before he attempts to help the child.

If there are special deficiencies to be corrected, the child should be sent to the proper specialist. If there is any indication of incoordination or pronounced nervous movements, he should be referred to a neurologist; and if he shows pronounced emotional difficulties, a psychiatrist may be consulted.

CHANGING EMPHASES

THERAPY IS ACHIEVED THROUGH A RELATIONSHIP

In the beginning of the child guidance movement, it was taken for granted that treatment would be done with the child. Because the child was the patient, treatment of the child became the province of the psychiatrist. The social worker usually saw the mother to secure a social and developmental history. The psychologist was expected to administer mental tests and to carry out a limited amount of therapeutic or remedial work, especially that which involved remedial exercises and tutoring. The parents were thought of as adjuncts to the process—they could be entrusted with part of the responsibility of carrying out the program of treatment (Stevenson and Smith, 1934). It soon became apparent, however, that securing the cooperation of the parents was not a simple matter, and the treatment of parents was not merely accomplished through advice and suggestion (Witmer, 1940). It is now only a decade or so since this point has been thoroughly realized and various techniques of "attitude therapy" and "relationship therapy" have been developed which could be taught by psychiatrists to social workers for use in work with parents. Indeed, for a time it seemed as though the pendulum had swung too far in the other direction, that parents were being treated and the children neglected.

Now, with accumulating experience, it becomes clear that it is highly desirable in most cases to treat both the child and his parents. Practically all children's problems are caused by faulty parental attitudes and undesirable feelings. But once a child shows problem tendencies and neurotic symptoms, he is maladjusted independently of his parents. A disease is contracted through bacterial infection from without, but when a person is sick, he has the bacteria within himself. After a child becomes a problem and develops neurotic trends, one can help parents to become readjusted and the child will still continue with his problems. To be sure, the child has recuperative powers by virtue of his own developmental tendencies, and in a healthy environment he tends to find a way of making more mature and more adequate adjustments, but it would be hazardous to depend on development alone to eliminate neurotic trends in a growing child.

Today, when resources permit, treatment is given to both the child and his parents. Usually all the members of the family would benefit from treatment, and were it possible to treat them, forces of reconstruction would be put into operation the faster. Actually, it is easier for the mother than the father to come for treatment, and that is the way it usually works out. On the other hand, to treat any one member of the family—either child or father or mother—is of some help. When one member of a family is neurotic, there is pretty good reason to believe that all the members of that family are to some degree neurotic. For instance, when a mother brings her child to the clinic for help, there is good reason to believe that in most instances it is partly because the mother herself has problems and is attracted toward a place where she can talk about them with some understanding individual, although at first she would violently reject this suggestion. When a child is unhappy, disturbed, or presents behavior problems, the chances are good that both parents are anxious

and maladjusted. When a parent is nervous, unstable, maladjusted, or queer, the chances are strong that children in the family will present problems or be unhappy, although to the casual observer they may not exhibit any difficulties. When a mother is anxious or nervous or unstable, one may assume that the father is equally disturbed emotionally, although he may show his difficulties in an entirely different way.

When any member of a neurotic family achieves better adjustment, it serves as a catalysis for helping all other members of the family to work out their own problems. Help a child to become more stable and to show less anxiety and aggression, and his mother thereby finds it easier to accept him and loses some of her tension and anxiety—unless, of course, the parent is using the child's illness to work out some of her own needs. Help a mother to be less anxious and concerned, and others in the family find it possible to be more objective. So the general rule is to treat as many members as possible of a family which seeks help about a child. On the other hand, one treats any member of the family who is accessible and amenable to treatment, with the knowledge that some resources for health and recovery are being injected into the total situation.

DIVISION OF LABOR

When more than one member of a family is to be treated, the problem of clinic personnel arises. In the traditional child guidance clinic, it was customary for the psychiatrist to treat the child and the social worker to deal with the mother. But in a school situation with limited personnel, there is a temptation for the psychologist or the visiting teacher to establish contacts with all the individuals concerned in the situation—the child, the parents, the teacher. Convenience and the demand for economy make this a reasonable procedure, but there are grave technical objections to it. The essence of treatment is in the relationship between counselor and client. It is essential that this relationship be one in which the client can place absolute trust and confidence in the counselor. If the counselor who sees a child also sees the child's parents or his teacher, a barrier is created. "What if the counselor repeats to parents or teachers some of the intimate and personal things which I feel like saying?" "What if the counselor reveals to parents or teachers how I actually feel toward them?" "What if the counselor is actually more interested in, more sympathetic toward, more in league with, or fonder of my father or mother or teacher than of me?" If these questions or doubts arise in the child's mind, they will interfere with the relationship through which effective treatment must proceed. To be sure, if one worker sees various members of the family, he can gain a clearer insight into the relationships within the family than if he must estimate feelings and relationships by recourse to records of other workers or by interpretation of the reactions of one subject. But this advantage in diagnosis is not so important as the influence on the relationship when one counselor attempts to treat several persons who already have established relationships. The best results can be expected to follow when there is a division of labor in treatment and different workers deal with separate members of the family.

BASIC ATTITUDES

ELIMINATION OF SYMPTOMS

In the early days of the child guidance movement, counselors usually attempted to remove by straightforward methods the problems for which the child was referred. Most teachers still adopt this approach, as do many psychologists. Practice in child guidance clinics was also based on belief in straightforward methods as recently as fifteen years ago, although theory since that time has so developed that many child guidance experts find it difficult to believe the early naïvetés. Many psychologists still hold to this approach by a too literal application of theories of learning. It is true that by conditioning or reconditioning through appropriate manipulation of the environment, any habit can be broken or fixed. Mowrer and Morgan have independently invented methods for curing enuresis by a process of conditioning (Mowrer, 1938; Mowrer and Mowrer, 1938; Morgan and Witmer, 1939). But this direct attack on behavior problems in children is based on altogether too simple a concept of personality. It uses only some of the data of psychology to the disregard of other data. It quite ignores the meaning of behavior in the individual adjustment and treats it as though it were simply a matter of stimulus and response, having no connection with the economy of the organism (Michaels, 1939). A more adequate point of view is to consider behavior and personality difficulties as *symptoms* of frustrations and conflicts which the child is attempting to overcome by these inadequate methods.

REMOVING FRUSTRATIONS

A newer principle of child guidance is that of removing frustrating conditions. Rogers (1939) discusses

treatment under such general headings as "Change of Environment as Treatment," "Treatment through Modifying the Environment." This has been standard child guidance practice for many years. Either the child is removed from his home and placed in a foster home or institution, or some attempt is made to change conditions in the home itself. The latter is nearly always preferable. Advice that children be removed from their homes is given with great reluctance and only as a last resort. Even a home which is vicious, degrading, or poverty-stricken may have advantages in providing emotional warmth over a foster home or an institution. Somehow, except in extreme cases, a child derives a feeling of belonging and a feeling of emotional security in his own home, no matter how inadequate it may be, which no other home can quite provide.

If the home is inadequate perhaps it can be improved. Since the focus of inadequacy in the home in practically every instance is found in the personal relationships, therapeutic efforts are directed toward modifying the attitudes of the parents.

But other changes as are required by the specific case can be recommended as well: changing a child's grade or teacher in school, sending him to a summer camp, or interesting him in a recreational group, tutoring and special remedial work in skills which he lacks.

DIRECT PSYCHOTHERAPY

Merely changing or modifying the environment of a child is not sufficient to eliminate the difficulty. Somehow maladjustments become part of the child. He must be given more direct help in changing his own attitudes, dissolving fears, gaining new courage and perspective, and finding new security. So the most recent emphasis is in dealing directly with the child himself. At the present time more faith is placed in psychotherapy than in manipulation of the environment. However, the precise plan of treatment must be decided upon afresh for each child in the light of his problem and the factors that are responsible for it. Most child guidance agencies now employ a variety of methods, including direct conditioning, environmental change, and psychotherapy.

Indeed, with the new aim of helping a child achieve better integration and freedom from conflict, the psychologist may even go so far as to permit the child to keep his symptoms until he is ready to drop them. This is done on the theory that if he is forced to drop a symptom which is used to satisfy some underlying psychological need, the need still persists and some other form of adjustment will have to be adopted which may be even less desirable than the first. A psychologist may even tolerate permitting a child to continue to do poor work in school, refuse to read, bully other children, wet the bed at night, show off or brag, until treatment has proceeded so far that he no longer has a need to do these things. This would seem to contradict the very aim and purpose for which a child is brought for treatment. But the psychologist should consider the needs of the child rather than the moral desirability of some particular form of conduct.

These principles may be illustrated by methods of helping children with deficiency in reading. The first and most obvious method is a direct attack on reading difficulties by remedial methods. But failure to read may be considered a symptom, a positive method of adjustment, which a child adopts to satisfy some need. For instance, the child may fail to learn to read because by so doing he receives the persistent concern of his parents, and this is the only way in which he can prove to himself that they love and care for him. So one may attempt to help a child read by an attack on his reading difficulties or by ignoring them temporarily and going directly to his personality difficulties. When these are straightened out, the child is more ready to learn to read and will make rapid progress with suitable reading material, a helpful teacher, and the right incentives.

With our present insight, it is not possible to say which method is best. It may not make much difference in the end. Helping a child to read by direct measures may give him a feeling of adequacy and worth which will lift him out of his depression and enable him to adopt a more courageous outlook on other problems as well. Or attacking the personality problem may cause a general reorientation and keener zest for all kinds of learning. Perhaps a double-barreled attack, naturally by different workers, using both methods at once, will be found to be the most effective of all.

David Levy (1943), a prominent child psychiatrist, in his book on *Maternal Overprotection,* paints a rather discouraging picture of the possibility of working successfully through psychotherapy with overprotected children and their mothers. With regard to using psychotherapy with these children he says curtly, "It made little difference how many interviews were held or what variations in method were employed by the staff. The results were uniformly unsuccessful." With regard to the success of psychotherapeutic methods with the mothers of over-

protected children, Levy says, "Regardless of the outcome of the case, in terms of the modification of the behavior of the child, mothers never accepted the role of patient in a single instance, nor changed fundamentally toward the child." It is significant that Levy found educational and environmental methods most valuable with these overprotected children. "Under the former are included giving of advice and information to parents or child, demonstrating methods of handling, use of books, and tutoring aids. Under environmental aids are included use of camps, boarding schools and social contacts for child; use of clubs, vacations and other outside interests for parents." "Advice and demonstration as a therapeutic procedure with mothers consisted in helping them to ignore attention-getting behavior; in changing coaxing and nagging into direct commands; in breaking up the pattern of infantilizing care by direct refusals; and in encouraging the child to become more responsible and independent." With these children, where the difficulty lies in too close a parent-child relationship, Levy finds that educational methods, while they are not most thoroughgoing, are most effective in the practical situation because of the difficulties involved in carrying out therapeutic treatment. Levy's discussion is worth reading in its entirety.

CRITERIA OF IMPROVEMENT

Child guidance workers are sometimes misled by superficial signs of improvement. It frequently happens that after a child or his parents come for treatment for a few sessions, the problems have completely vanished. The mother no longer finds the child difficult at home and reports from school are encouraging. The child himself is happy. The tragedy arises in such cases that the parent will discontinue the treatment, believing that there is no further need. One may be quite sure that changes do not come so rapidly—this is a spurious readjustment. Naturally, what happens in these instances is that the relationship or transference has become a new symptom taking the place of the old problem. The reassurance, the confidence, the security which the child finds in his relationship with the counselor has taken the place of his other adjustments and gives release and freedom from conflict. As long as the relationship lasts, the improvement may continue. But until this relationship is linked with new attitudes, new insights, and until a continuing relationship with its promise of permanence of security is arranged, the improvement cannot be considered permanent. The counselor should only expect and be satisfied with slow and gradual change and improvement.

SUMMARY

These general principles underlying work in child guidance have accumulated gradually over the two decades in which child guidance has been under experimental scrutiny. Recent studies have established criteria for treatability of problem children and pointed to those children for whom there is the greatest promise in corrective child guidance. Child guidance can never be reduced to a set of rules, formulas, or techniques, but must always assume the fresh study of each individual child who presents himself. The tempo of child guidance is extremely important. Beginners have to learn to think in terms of weeks and months instead of one or two initial conferences.

There has been considerable experimentation with variations in therapy and the answers are not all in. In general, it would appear that when a child is brought for study and treatment, all members of the family can be thought of as candidates for profiting by treatment. Naturally, the exigencies of the actual situation will determine exactly what lines of treatment will be followed. Also newer insights into the significance of "relationship" give new validity to the established policy of division of labor in contacts in child guidance work.

Only a few years ago "symptom treatment" was quite general. Symptom treatment is used today practically universally by teachers and counselors in schools, and while there is good reason to believe that symptom treatment misses the larger educational, as well as therapeutic, objectives, it may be the method which can be depended upon for the most immediate and practical results. Today child guidance is challenging all education with new objectives and new methods.

READING REFERENCES

Hamilton, Gordon, *Psychotherapy in Child Guidance.* New York: Columbia University Press, 1947.

Institute for Juvenile Research, *Child Guidance Procedures.* New York: Appleton-Century-Crofts, Inc., 1938.

Stevenson, G. S., and Geddes Smith, *Child Guidance Clinics.* New York: The Commonwealth Fund, 1934.

Witmer, H. L., *Psychiatric Clinics for Children.* New York: The Commonwealth Fund, 1940.

——— (ed.), *Psychiatric Interviews with Children.* New York: The Commonwealth Fund, 1946.

61. CARE AND TREATMENT OF LANGUAGE DEFICIENCIES

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During the stress of preparation for war and the actual period of hostilities, methods and machines are often developed that prove of value in later peacetime applications. Thus, out of the era of World War II, there will undoubtedly be found methods of dealing with problems that are as effective in meeting postwar demands as they were during the overwhelming haste-and-pressure situations connected with mobilization. Examples of this are to be found everywhere, as in medical, administrative and educational fields, to indicate but a few. Perhaps not the least significant of such wartime advances may be recognized in the new approaches to the "rapid fire" techniques for dealing with the problems of individuals who, for one reason or another, were found to be seriously deficient in their ability to use written and even spoken language. Such men and women may, of course, be found in every country in the world. They are generally classified under the broad category, "illiterates." Apparently no one really knows with any degree of certainty just how many such linguistically limited people there are in the world, or even in any one national group. Estimates are offered as facts and appear regularly in all standard encyclopaedias and reference works. In actuality, few of these figures can be taken seriously, and definitely cannot be compared one with the other because of the general lack of adequately defined criteria.

For the most part, nations tend to pay lip-service to a policy of reducing illiteracy but in the past have seldom worked very hard at the task. Not infrequently one suspects that where reports are made which emphasize the relatively low existing rate of illiteracy, it is not the level of literacy that has been raised, but the standards for those whom one calls literate have been so reduced that even those who do not possess the mental faculties to be considered capable of doing much more than making an "X" as their mark are included as literate.

Whatever the facts are, internationally speaking, we must continue to wait for time and careful investigation to reveal. One thing we do know is that when the Selective Service Act was put into operation in the United States in 1940 most of us suffered a rude awakening regarding this matter. It was a shock to most people to learn that when we were confronted with the task of developing an intelligent, literate fighting force of approximately 15 million men and women that a sizable segment of the population of the United States could not be utilized for this purpose until ways and means had been found of bringing them up to a level where they could read, write, and do arithmetical computation equivalent to that demanded of the average ten-year-old child.

This is a fact. And since manpower was the watchword of that day it was necessary that nothing remained undone in salvaging those individuals who lacked adequate educational preparation for service in the Armed Forces. Everyone in the military service hoped that this task would be done before the induction of the individual took place. However, for various reasons, it could not and was not accomplished prior to induction. The task, therefore, fell upon the military. In actuality, the Navy and Marine Corps, because of their selective requirements, received comparatively few men who fell below a minimum of a so-called "fourth-grade school" level. The Army had to meet the problem on a more or less massive scale.

Based on the nature of the language deficiencies encountered among these men, they may be roughly classified as (1) literate non-English speaking, (2) illiterate non-English speaking, (3) illiterate English speaking, and (4) the mentally retarded. The vast majority of these men were in the third category. They were men who could speak English but who, for one reason or another, lacked the ability to read and write even the simplest material. They were, as

a rule, not mentally inadequate but required sufficient educational opportunity to be brought up to at least the fourth-grade level of language ability.

Similarly, the men who were in the first classification were individuals who came from non-English speaking environments but who, being literate in one or more foreign tongues, merely needed sufficient training to make them capable of using simple English.

Those who were illiterate and also non-English speaking included many Spanish-Americans and occasionally an Indian, Chinese, or European who had been educationally deprived and who frequently was, in addition, often more likely to be somewhat mentally retarded. They, like the natives of this country who were mentally retarded, presented a problem in language training and, in addition, frequently were slow or poor learners. The task in bringing such personnel to acceptable educational levels of attainment in a relatively brief training period was always difficult and often impossible.

In keeping with the policy of the Army every man who was inducted was given a series of group psychological tests. These tests were both verbal and nonverbal so that no man was prevented from demonstrating his mental capacity unless he lacked the language ability to work with paper and pencil.

About 8 per cent of the men inducted were unable to take successfully a paper-and-pencil test. These men were directed to a psychologist, or personnel consultant, as he is called in the Army. The personnel consultant administered a battery of individual tests of the same type as the Bellevue-Wechsler Adult Intelligence Test. In addition, he examined and analyzed the personal-history data of the man. If the soldier had a stable vocational history, was well oriented and capable of taking care of himself, and was mentally capable of performing ordinary duties, he was returned to a regular training unit where he took the basic training of the Army. If, on the other hand, the examination led to the conclusion that the man was not capable of going directly into regular training, he was sent to a Special Training Unit.

While military leaders often were of the opinion that the problems resulting from the various language deficiencies could and should have been corrected or, better yet, prevented by civilian agencies, once the matter was definitely thrown in their laps, they began immediate preparation to meet it effectively. To make this possible it was speedily recognized that personnel who suffered linguistic handicaps for one or more reasons must, of necessity, be grouped into a unit that would permit special instruction and training to overcome their limitations. It was considered important from a motivational standpoint, however, that men undergoing this training be protected insofar as possible from being labeled either officially or nonofficially as dopes, dumbbells, or any of the other names that men are so apt to apply to those whom they feel are being given consideration and care different from their own. This could not be fully attained but to some extent it was possible to achieve such an attitude by naming the program "Special Training," and by calling the unit to which such training was given a Special Training Unit (STU).

SPECIAL TRAINING UNITS

The Special Training Unit was the specific organization within the Army that was charged with the duty to educate military personnel who, by virtue of one or more deficiencies in academic background, mental capacity, or social competency were, upon induction, unprepared to assume the obligations entailed in regular military training and/or would, if placed initially in such regular training organization, have greatly retarded the rate of instruction.

The history of the Army Special Training Units reveals that they led a rather varied existence insofar as their assignment to the major training organizations of the Army was concerned. Originally these units were set up and located in the Replacement Training Centers scattered throughout the continental limits of the United States. This plan was feasible and desirable during the prewar Emergency period of 1940–41 when the Replacement Training Centers were engaged in training men for a wider variety of military jobs and where specialization had not reached its peak. As time went on, however, the pressure of the war effort and the need for highly trained specialized personnel made it necessary for Special Training Units to be assigned to only those Training Centers where men were being prepared, for the most part, for less highly skilled military professions and tasks.

Special Training Units were organized on the basis of a regular military organization with the squad, platoon, company relationship maintained so that regular military training might be effectively taught to men in the STU to the end that upon reaching "graduation" to a regular unit, the individual would not be embarrassed by a lack of ability to get along in military instruction. Furthermore, this procedure reduced the delay in getting these men up

to military parity with men who were in no need for STU instruction.

SPECIAL TRAINING UNIT TRAINING PROGRAM

In general the program of instruction in STU's was divided equally between (1) academic instruction in reading, writing, and arithmetic and (2) military training. Such a dichotomous arrangement of instructional material provided integration of academic subject matter with the military knowledge every soldier needed. In addition, as indicated above, the STU trainee emerged more adequately oriented to the military environment than he would have without this integration and his regular training time was thus definitely reduced.

The length of time an individual spent in the STU was largely determined by his ability to attain the minimal requirements in the academic and military subjects being taught. The maximum training period permitted in these units varied somewhat from the time of their inception in the training program until the end of their use. At one stage it was considered permissible for men to take up to 17 weeks of Special Training Unit before being assigned to a regular training unit. At other times this maximal limit was reduced to as few as 13 weeks. The principle factor involved was, of course, the need for military personnel in the active zones of operation.

In general it was found that 8 weeks was the optimal training period necessary to attain the basic proficiencies requisite for a man's entering and completing regular training successfully. This statement, of course, applies more specifically to those men who were mentally competent but who had been more or less educationally retarded. Those who actually did not possess adequate mental capacity could not be brought up to even the minimal standards in this amount of time and often were found after 17 weeks of training to be totally incapable of being trained for any military assignment above the most menial levels. Fortunately the number falling into the latter category was quite small.

Upon successful completion of the special training program the soldier was returned to a regular training unit. He was fitted into that segment of the regular training cycle which most nearly conformed to the level of military training he had accomplished during his period of special training. This usually meant that he could enter regular training after the third or fourth week of training and continue without difficulty. Variations in this procedure depended upon the training schedule of the Replacement Training Center.

Insofar as its military organization was concerned, the Special Training Unit was similar to any other training organization. Because of the superiority of opportunity provided for instruction, greater individual attention, and other related factors many of the Special Training Units made excellent competitive records on the rifle range, in athletics, and in other military activities. As a result, any stigmata that might have been attached to such a unit in view of its purpose tended to be vitiated, and it was extremely rare to find a man who needed such training reluctant to go to the appropriate unit.

TRAINING PERSONNEL

The personnel who conducted special training were carefully selected. Officers detailed to duty with such units were chosen on the basis of civilian experience with adults of limited linguistic ability, the mentally dull, and the socially incompetent. These officers selected enlisted personnel with backgrounds rich in teaching experience, institutional training, and, above all, a desire to help their men attain maximum military efficiency.

The most significant characteristic of personnel engaged in this work was their ingenuity in adapting every possible type of educational technique to the prompt solution of their task. The frequent use of visual aids, practical demonstrations, and controlled but uninhibited classroom procedures yielded ample testimony to the effectiveness of their teaching procedures.

Teachers and supervisors of the programs kept to a high level of performance and were under frequent scrutiny by their superiors. Furthermore, the level of attainment of the students was measured constantly with regard to both military proficiency and academic attainment. All men undergoing training were rated by all their instructors, and perhaps the most significant commentary on the effectiveness and significance of the training program was the infrequency with which a man failed to do as well as or better than his average rating would lead one to anticipate.

TEACHING MATERIALS

The task of the Special Training Unit was to instruct men assigned to it in reading, writing, and arithmetic, as well as in military subjects, to the end that they might be brought up to a level of performance

commensurate with the needs of the Army as rapidly as possible. This meant that the training should be completely devoid of any frills or nonessentials. Men who required training in the basic academic subjects needed not only skilled teachers but textual material to provide them with a means of learning rapidly.

The amount of useful training material available for adult elementary education was extremely limited. Even such materials as existed were not satisfactory for the specific purposes indicated. As a result most of the materials used were developed by the Army. The teaching of reading, for example, was begun with an Army textbook called *The Soldier's Reader* which was planned to be used in developing a functional vocabulary of about a thousand words, one fourth of which were to be military terms and the remainder words used on levels corresponding to first- to fourth-grade school attainment. The greatest values of this manual were not in the content of its vocabulary but in the fact that it was built around the military environment, was devoid of infantilisms, was pitched at the level of adult interest, and free from the tendency to preach at the reader. In short it was a man's primer as contrasted with a child's first lesson book.

Full use was made of visual aids as a means of stimulating the slower learner. A film strip planned to teach basic military terms was developed and was supplemented by a notebook bearing the same pictures as the film strip upon which the learner could write the words he had learned. Ample practice in spelling, writing, and using the words which had been learned was provided.

The same procedure was followed in the teaching of arithmetic. Arithmetic problems were interspersed throughout the program so that integration of the arithmetic skills with the reading and writing skills was accomplished.

Additional practice in reading, writing, and arithmetic was furnished through auxiliary devices published for the men in Special Training Units. A monthly periodical entitled "Our War" was supplied each man. This contained a brief digest of current news at a vocabulary level that was functionally suitable as well as comprehensible to the reader. Many pictures and paper-and-pencil games were included to stimulate the soldier's desires to use his new learning.

The aim throughout was to accomplish the training program without making the learner feel ill at ease or that he was being forced to do something that he did not feel was essential to his success in the Army. The materials used were appealing but practical. Everyone responsible for the program was fully cognizant that the goal was not mere academic achievement but was functional attainment that would permit the individual to carry out his military duties with understanding and without delay.

MEASUREMENT OF ATTAINMENT

The development of a teaching program called for the production, not only of teaching techniques but also of means whereby attainment with those techniques could be objectively measured. Tests of proficiency in reading, writing, and arithmetic were prepared for the measurement of progress throughout the total course of instruction. In addition, a placement test was used to assist in assigning men to the level of instruction they required. Thus, a man who was well grounded in the fundamentals of addition and subtraction did not repeat such training, or if he was not in need of the simplest training in reading he might be placed in a more advanced reading class. A final achievement test measured the ability to use the basic subjects in a functionally useful manner.

APPLICATIONS TO CIVILIAN LIFE

While the results obtained by the Armed Forces in the education of illiterates may leave much to be desired, they were unquestionably far superior to the civilian practices that existed before the war in which the matter received scant attention. Were this not true the problem would not have existed in the proportions found by Selective Service. It is clear that this experience in the rapid training of men and women to literacy can be utilized in civilian life. What is more, the process can be somewhat slower and amplified to make it more effective.

Certain principles used in the military procedure, however, seem applicable to a civil program. These may be summarized as follows:

1. Basic reading, writing, and arithmetic skills can best be taught to adults when they are made a part of the life situation in which the specific individual is a part. The content of the material to be taught should be taken from the social milieu from which the learner comes. It should be built around his vocational, avocational, social, and economic interests. By such a technique, interest is more likely to be maintained because the subject matter is realistic and of importance to the learner.

2. The learner must be oriented to see the utili-

tarian values in what he is asked to learn. Few "illiterate" adults want to learn for purely cultural reasons. If learning can be related to greater opportunities for gaining better food, clothing, and shelter, or making one's family more secure, it is likely that greater effort will be made to attain the educational goal.

3. During the early stages, at least, the learner should be assisted to attain relatively large gains in knowledge in a brief span of time. Thus, interest is maintained long enough to make the learner aware of the "profits" and to recognize that more effort will probably enhance them.

4. The removal of illiteracy is not half so much an educational matter as it is a social problem. One seldom seeks to learn the three R's when his wife and children are not getting enough to eat. If educational results are to be expected, social service and education must be combined.

READING REFERENCES

Bingham, W. V., "The Army Personnel Classification System." *Annals of the American Academy of Political and Social Science,* 1942, **220,** 18–28.

Goldberg, Samuel, "Contributions of the Clinical Psychologist to Army Training Programs." *Bulletin of Military Clinical Psychologists,* 1946, **1,** 53–65.

Seidenfeld, M. A., "Limited Service Personnel in the Army: A Program of Training for Service." *Psychological Bulletin,* 1942, **39,** 437–438.

———, "Pychological Practices in the Army." *Psychologist's League Journal,* 1942, **5,** 6–8.

———, and P. A. Witty, "Psychometrics in Special Training Units of the Army." *Education,* 1943, **63,** 534–537.

——— and ———, "A Reading Program for the Linguistically Handicapped and Mentally Limited Personnel in the Military Service." *Educational Method,* 1943, **22,** 354–358.

Witty, P. A., "Procedures Followed in the Preparation of Instructional Materials for Illiterate Men in the Army." *American Psychologist,* 1946, **1,** 262.

62. EXCEPTIONAL CHILDREN

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It is not easy to distinguish between the education and the care of exceptional children. It is almost a truism, however, that the former cannot take place unless the latter is functioning to at least a fair degree. The crippled child who has the power of locomotion, and who is mentally normal, may have his educational needs satisfied in school without any major changes in school plant or curriculum. He may also have his physical needs satisfied by home care or perhaps in the out-patient clinic of the local hospital. The bedridden orthopedically handicapped child who is deaf and speechless presents quite a different problem. He needs very special home or hospital care and certainly, if he is to have speech at all, he should have highly specialized educational techniques supplied for him, not in the school, but in the home or hospital.

Many exceptional children are regarded as educable, while others, with severe mental handicaps, must be thought of as uneducable, and hence welfare cases. That there has been a decrease in the percentage of the child population classified as welfare cases, through the development of techniques for evaluating educability and appropriate methods and

materials of instruction, is a socially significant contribution of education and psychology. Cerebral palsied children, once regarded as complete social liabilities or as uneducable, are now more often than not found educable because the proper methods of educating them have been developed (Farrell, 1941). Many speech defective, deaf-blind, deaf, and blind children who formerly would have been refused an opportunity for schooling on account of their physical handicaps and assumed mental incapacity are now known through psychological understanding to be able to profit from a school program.

DEFINITION OF EXCEPTIONAL CHILDREN

The designation of certain children as exceptional rather than nonexceptional is clearly an arbitrary matter. Just where the dividing line falls depends upon the soundness of our knowledge concerning the particular characteristic which determines the exceptionality and the development and availability of examination techniques for the accurate identification of the less extreme instances of exceptionality.

The various state directors and supervisors of special education, meeting under the auspices of the US Office of Education in 1938, adopted the following statement concerning the kinds of children that are considered exceptional and in need of special education: "The term 'exceptional children' is interpreted to include the following types: Mentally handicapped, all kinds of physically handicapped, mentally superior children, and other types of children in serious need of special consideration, including the neurotic, emotionally maladjusted, and behavior cases." (US Dept. of Interior, Office of Education No. 42937, December 1, 1938.)

CLASSIFICATION OF EXCEPTIONAL CHILDREN

The arbitrariness of the definition of each category of exceptional children is apparent. From a psychological point of view, however, exceptionality cannot properly be determined by only one criterion. Mental superiority, for instance, is not just a matter of a high intelligence quotient, nor is mental retardation merely a matter of a low intelligence quotient. But in dealing with the practical problem of bettering educational and social adjustments for children who deviate from the average group it is necessary from an administrative standpoint to oversimplify the situation and to classify on the basis of only one trait, or on the basis of the trait which is believed to be the most significant in contributing to the exceptionality. A mentally retarded child with a slight visual impairment would be dealt with primarily as a mentally retarded child, but both defects would require special educational provisions. The child's, social, emotional, and physiological needs also would receive attention.

MENTALLY RETARDED

From the standpoint of education of all exceptional children, the mentally retarded child has received the most attention. Often erroneously confused with the mentally retarded are the children who, because of some kind of educational or psychological mutilation, are educationally retarded in spite of their having average or above-average learning capacity. For a variety of reasons, some administrative and others educational and psychological, children have been regarded as needing special instruction for the mentally retarded if their intelligence quotients, on proper individual psychological examinations, fall between an upper limit of from 70 to 85 down to, generally, about 50. Barring exceptional reasons, those below 50 are coming increasingly to be regarded as the responsibility of welfare rather than educational departments.

Educators and psychologists are in fair accord in classifying children with intelligence quotients of 75 or less as mentally retarded children. This accounts for the lowest 3 per cent of the public school population and designates the group to which society should make available those techniques of special education that are known to be effective. In a few communities, less than one per cent of the public school children would have intelligence quotients of less than 75, while in some communities more than half of the children are below this point.

MENTALLY SUPERIOR

The lower I.Q. limit of the mentally superior group has been set variously at 150, 140, 130, and 120. Much can be said for the use of any of these points as the dividing line. If it is just as reasonable for society to provide for the mentally superior as extensively as for the mentally retarded, it would follow that all children having I.Q.'s of 125 and above should be recognized as requiring special education because of their superior learning capacity. Some 2 or 3 per cent of the public school population fall in this group, with the variations in percentages from community to community almost as great as in the case of the mentally retarded.

VISUALLY HANDICAPPED

Largely through the influence and activities of the National Society for the Prevention of Blindness, partially sighted children have been thought of as those children who, with correction, have visual acuity in their better eye, according to the Snellen Chart, of 20/70 or less, i.e., those children who cannot or are just able to read at a distance of 20 feet letters which the average child can read at 70 feet. Sight conservation classes are usually intended for visually impaired children having visual acuities ranging from 20/70 to 20/200. Children having, after correction, 20/200 or less vision in their better eye are thought of as candidates for placement in schools or classes for the blind. Probably not more than one fourth of one per cent of all school children fall into the visually impaired group.

ACOUSTICALLY HANDICAPPED

Educational practices and thinking are not so clear-cut concerning those children who are auditorially impaired. For a long time the determination of auditory acuity has been quite subjective. The whisper test and the watch test, which have been so commonly used, are complicated by differences among whisperers and watches, so that a knowledge of the distance at which either can be heard is not particularly helpful in ascertaining the degree of hearing loss. Comparisons between results cannot be made either for degree of hearing impairment present or for frequencies at which acuity is defective. The tuning-fork test is of more value but it necessarily remains essentially a laboratory technique. The development within the last decade of the audiometer to test the hearing of public school pupils, either in groups or individually, and the agreement upon a unit of hearing acuity, the decibel, have contributed significantly, not only to more accurate measurement and identification of children with hearing losses, but also to a greater awareness of their special educational needs.

City-wide and state-wide hearing surveys during the last five years have caused educators to consider children as hard of hearing if they have as little as 10 per cent hearing loss in their better ear. Certain residential schools of the deaf accept children with only 20 per cent hearing loss in their better ear. As a general rule, however, such schools prefer not to accept children who are hard of hearing unless there is a loss in the better ear of at least 40 per cent. Between 2 and 4 per cent of all school children have hearing losses of 10 per cent or more in their better ear.

SPEECH HANDICAPPED

Speech handicaps caused by structural defects, such as cleft palate, hare lip, and brain injury, are relatively easily identified, but diagnosticians often disagree in determining the functional handicaps. Gross cases of stuttering, stammering, sound omissions and substitutions, and lisping usually are easily identified. From 4 to 6 per cent of all public school children have such speech handicaps. If handicaps which are less serious, or temporary, or caused by foreign language background are added, from 16 to 20 per cent of all public school children would be considered in need of speech correction.

PHYSICALLY DELICATE AND ORTHOPEDIC

Identification of the physically delicate and orthopedic children is particularly difficult in the public school. Included in the former group are the tuberculous, the malnourished, and the cardiac cases. The medical specialists have the responsibility of deciding whether children are seriously enough handicapped in these ways to warrant provision of special educational modifications. The same thing applies to the crippled groups, including the cerebral palsied. In a number of city and state systems, the epileptic is included in the orthopedic group. Because of the widely varying definitions used and the difficulties in getting an adequate census of these exceptional children, it is difficult to state with any great certainty how frequently these difficulties occur in the general school population. Probably from 1 to 2 per cent of all school children would fall into the two groups as they are described here.

THE EDUCATIONAL PROBLEM

It can be seen that from 10 to 15 per cent of all children of public school age warrant the provision of educational facilities especially suited to their particular needs and capacities. The nature of these educational provisions is not to be construed in a narrow sense. Much more than the learning of the three R's is involved. Most of these children also present important problems in social and emotional adjustment. The superior child needs a broad educational program that will prevent his becoming lazy and unaware of his responsibilities to the group of which he is a potentially important part. The handicapped child needs a type of educational and social opportunity not characterized by failure and frus-

tration, but typified by opportunities to succeed in tasks appropriate to his limitations. Under these conditions he too can experience a measure of success and acquire a sense of personal worth that is so important in good mental health. This is an undertaking in which the educator cannot succeed without the help of the educational and clinical psychologists, and in their work the recommendations of various specialists in medicine and surgery serve an important function.

PRESENT SCHOOL PLACEMENT

Most educable exceptional children are in regular public school classes and it is hoped that the regular class teachers are making adjustments in the learning programs that are appropriate to their needs and capacities. In many of these regular classes intelligent differentiated instruction is adjusting the curriculum to the child, and the child to a world in which he may achieve happiness.

Some attempt is being made to meet the needs of exceptional children by the provision of special classes in day schools and by special education provided in residential schools for the blind and deaf. A number of private schools, mainly residential schools, are operated for the care and training of various types of exceptional children. State institutions care for and train a goodly number of mentally retarded or mentally defective children, epileptics, and emotionally maladjusted children who, were it not for such special provisions, might be in reform schools or penal institutions.

Statistics from the Biennial Survey of Education in the United States reveal that approximately 375,000 exceptional children are being educated in special classes and schools in this country. When we consider that at least 10 per cent of our 25 million public school children need special educational consideration, it is seen that these services provide for only 15 per cent of those who may reasonably be supposed to be in need of special education. What then is the status of the 85 per cent (almost 2¼ million) of exceptional children who are not in special classes or schools? Many, of course, are in regular classes or in schools with or without adjusted programs, but many more fall into the category of unlocated exceptional children.

UNLOCATED EXCEPTIONAL CHILDREN

A sizeable number of exceptional children are not in any school and, in many cases, are not even known to the local school administrator. There are various reasons for this situation. Many parents, educators, and physicians are not aware of the educability of certain of these exceptional children. Deaf and hard of hearing children, mild epileptics, certain cerebral palsied children, and a number of moderately mentally retarded children with personality handicaps were either refused admittance to public and private schools or dropped after they were unable to adjust satisfactorily to the conventional school program. Moreover, many handicapped children are unable to get to school because of their physical condition and because of the need of transportation.

As educators became more aware of the possibilities and potentialities of special education and as philosophic and economic readiness of society was established, laws began to appear in many states intended to implement the special procedures required for the education of these exceptional children. Transportation was either permitted or made mandatory; children with impaired vision were supplied with glasses or with sight-saving materials. Equality of educational opportunity began to take on a true democratic meaning. These laws in many states are really fine statutes, but they cannot operate when the children have not been located. They do not take the place of a real finding or screening program. Only in very recent years have the educators turned their earnest attention to the process of locating the exceptional children in their respective areas. To this end they have made use of the services of clinical psychology and medical inspection.

PSYCHOLOGICAL SERVICE

The psychologist's part in locating exceptional children, in studying them, and in making recommendations concerning their educational programs is of tremendous value both to educators and to society. Educational and clinical psychologists are helping parents, educators, and others to realize how much can be expected in the education of various types of exceptional children.

DISCOVERING THE CHILD

The responsibility for locating and examining children rests on the combined facilities of the home, the school, and the community. The identification and reporting of those who are exceptional on account of physical handicaps is the task necessarily of the medical doctor, either the general practitioner or the specialist. The psychologist or other school specialists may pick out visual or auditory impairments by means of screening instruments, such as the tele-

binocular and the audiometer. Children with these handicaps are then referred for diagnosis and prognosis to specialists in the field of the handicap. Speech defectives may be discovered during routine medical examination, or by the school psychologist, teachers, parents, and speech supervisors. As a rule, physically handicapped children are more likely to be identified earlier than are other types of exceptional children. Mentally retarded children whose I.Q.'s are not so low as to show that they are defective and mentally superior children who are not so high as to show obviously that they are of genius caliber are quite likely to be overlooked during their preschool and early school years. It is these children who are most easily discovered by the psychologist or by teachers using standard psychological techniques, such as group and individual intelligence examinations. A small number of school systems provide such psychological examinations for children before entrance, and others endeavor to assay the capabilities of pupils shortly after they enter school. Many such group examinations are available for this purpose; these include such well known tests as the California Test of Mental Maturity (kindergarten to adult level), the Detroit Intelligence Tests (first grade to college level), the Kuhlmann-Anderson Tests of Mental Ability (first grade to high school level), the Otis Quick Scoring Mental Ability Tests (first grade to college level), and the Pintner General Ability Tests (first grade to high school level).

PSYCHOLOGICAL EXAMINATION

Ascertaining the mental level and special aptitudes of the exceptional child is the responsibility of the school psychologist. But the psychologist does more than administer psychological examinations and report the results obtained. He makes recommendations for the adjustment of the school curriculum and activities to each child. He needs to study the whole child before his findings on the psychological examination can be meaningful and recommendations can be made. He has to know the facts and psychological implications of the child's socioeconomic background, physical condition, school history, and educational performance. An eight-year-old child with an I.Q. of 75 and with impaired vision or hearing, who comes from an impoverished home in which a foreign language is spoken most of the time, presents a teacher with an entirely different learning problem than does another child of the same age, the same I.Q., and the same sensory impairment, coming from a home of professional parents, where good English is spoken and where there is a large variety of playthings, magazines, and other similar forms of stimulation.

The problem of assaying the educability of the blind, deaf, cerebral palsied, and emotional children, to mention only the more extreme types of exceptional children, is relatively more difficult than with normal children. A mental age of 7 years for a ten-year-old child who otherwise appears normal defines the educational needs better than would the same mental age of a totally deaf child of the same age, since we do not know enough about how much or how little the latter mental age tells us in terms of educational expectations for the deaf child. The problem becomes more complicated with a multiple-handicapped child, for example, a deaf, blind, or hard-of-hearing athetoid. In examining these subjects the psychologist considers the general picture of how the subject reacts, whether or not there appear to be limiting factors extraneous to the function being tested, and if the results show reasonable internal consistency. He has to know not only how much his results reveal, but also how little they tell about certain other aspects of behavior, or about the particular form of behavior being studied. Because of limiting factors, he occasionally recommends or undertakes a diagnostic teaching period in which the child can be watched and compared with others, after which reevaluations can be made for final recommendations of an appropriate learning program.

RECOMMENDATIONS

The making of recommendations for educational adjustments based on psychological examination is the responsibility of the school psychologist. Just where, between the study of the child and the teaching of the child, the work of the psychologist becomes less needed and the work of the educator takes over the responsibility cannot be indicated easily. Neither is really absent from the picture of successful work with exceptional children. Unquestionably, a major contribution of the psychologist to the task of determining the proper education programs for exceptional children is in causing educators and parents to realize the importance of properly individualized learning procedures.

The determination of appropriate educational procedures for any given exceptional child is perfectly straightforward, but it may not be easy. The resources of many agencies, e.g., medical, social, and welfare, may need to be tapped. Three questions must be

answered before a meaningful program can be worked out: What are the facts concerning the child and the facilities available? What are the goals that are appropriate for the particular child? In light of the facts and the available facilities, how can the goals be attained?

Certain leads that might need to be followed in planning a program for a second grade boy who "just won't get interested in school work, especially reading" will be indicated. How old is the boy? Has his vision been properly examined? Is he bright and disgusted, or dull and bewildered? Has his hearing been properly tested? Was there a personality clash between the boy and the first grade teacher? Is there one with his present teacher? Is the boy revolting against excessive pressure at home? Is he under an emotional strain? Were his cultural background and mental maturity adequate for him to undertake first grade work when he entered school? Is he physically strong enough to be interested in his school work? Was he interested last year? Does the teacher teach her class as though all the children in it are equally able to undertake second grade work? Is she technically able to give him preprimer learning opportunities if he needs them? If he is mentally superior, can she show him how he can contribute to the interest of the whole class? Is she trying to capitalize on the interests he has? Does she have an adequate supply of materials for providing a differentiated program? Is she overlooking any social and emotional needs of this child? If he is hard of hearing, does she allow him to sit near the front; or if visually handicapped, near the windows and blackboard? If this child differs from the others in his group in mental capacity or physical condition, are the child's parents, the school administrator, and the other pupils ready to accept and understand the modifications in the program that will be needed? The recommendations for this boy would be determined by the assembled pattern of answers to these and many other similar questions. A change in any one of them would necessitate a change in the suggestions given the teacher by the psychologist. The average teacher can answer most of these questions after a fashion, but the psychologist can answer them for her, or help her find the answers, more objectively and more fully.

REPORTING RESULTS

The reporting merely of the mental age or I.Q. and the enumeration of tests passed and failed are only so much lost motion to the average teacher since there appears to be no relationship between these findings of the psychologist and the expectations or needs of the classroom teacher. The following two hypothetical reports on the same child are illustrative of good and bad practice. Report A is of little help to the classroom teacher; but Report B contains concrete suggestions to aid the teacher in dealing with the individual child.

Report A. May Bee was examined at the clinic 5/1/47. Records show a C.A. of 10-8, two years in first grade, now spending second year in second grade. No physical defects reported. Binet M.A. 6-10; I.Q. 64. Based at 4-6; passed all but definitions and memory for sentences at five; failed vocabulary and pictorial likenesses and differences at six; failed similarities, repeating five digits at seven; passed memory for stories, verbal absurdities, and comprehension at eight; and passed rhymes at nine. All tests at ten were failed. Auditory memory span three forward, two reverse. Visual imagery defective.
Recommendation: Placement in special class for mentally backward.

Report B. May Bee was examined at the clinic 5/1/47. Birth date: 9/9/30. Two years in first grade, now spending second year in second grade. May's Binet mental age of six years, ten months would suggest that she is maturing mentally at about two thirds the normal rate and that we are justified in thinking of her, educationally, more as a late first-grader or early second-grader, assuming that all has gone well with her learning experiences. If these results are correct, and they appear to be reasonably so, she probably was only about four years old mentally when she started in the first grade. As a result, she probably got off to a very bad start and is now unable to use efficiently what capacity she now has on account of her earlier failing experiences. The general picture of her behavior agreed fairly closely with the general level of her Binet examination. She seemed to enjoy the interview and cooperated well in the examination. She held some of the material quite close to her eyes, suggesting the possibility of a visual defect. This did not appear to affect the validity of the examination.
Recommendations: (1) May should be given the opportunity of being in a special class for mentally retarded children. If such a class is not available, she should be placed with the second or third grade teacher who knows the facts concerning her and who is willing and able to individualize the instruction to May's needs. (2) Her eyes should be examined by an eye specialist and correction provided if needed. (3) It may be necessary

for her teacher to go back to primer or early first grade level reading materials in order to find a place where May can profitably begin her learning.

SOCIAL AND PERSONALITY TRAINING

A well planned program for exceptional children is not confined to classroom education. It should contain definite, though not necessarily obvious, provisions for social and emotional development. Doctor Meta Anderson, for instance, pioneered in the wise use of the Vineland Social Maturity Scale in her special classes for mentally retarded in Newark, not only in examination of social adequacy of these children, as reflected in social ages and quotients, but also as a means of pointing the direction in training for social competency. Once the pupil's social maturity is measured, the items of the scale on which he has fallen short and on which he could profit from specific training are used as social goals toward which his teachers are expected to help him develop. Assuming the items of the scale are valid indicators of social maturity in untrained subjects, these items are of equal value in helping the teachers to define social goals.

The emotional needs of exceptional children are of paramount importance in their education. The psychologist can assist teachers and administrators in understanding them. Superior children need to be emotionally oriented toward the group to whom they owe many responsibilities. While it is true that regular school work presents no great difficulty to them it is important that they establish good work habits and attitudes. Quite frequently it is found that these children of superior ability are experiencing only mediocre achievements. They are capable of doing an enormous amount of curricular and of extracurricular work. The method of providing worthwhile activities for these children is not in simply allowing them to skip grades, for to do this we would throw them into social situations where they are asked to work and associate with children who are older than themselves. Frequently this age factor causes them to be nonacceptable to the group and thus we have quite unintentionally begun to educate them into long-haired, flowing-tie, semineurotic isolationism, or into educational snobs of the first degree. The type of training that seems to be mandated for them is one that permits them to remain with their own or slightly advanced age group, one that will widen the base of their educational experiences in the public schools. They have much to offer to their fellow students and indeed much to learn in acceptable leadership techniques while keeping the common touch. To be sure, they will eventually go into specialization of one type or another, but public school is not the place for it.

The successes that handicapped children experience in special education programs have definite therapeutic value. The crippled, the blind, the deaf, and the delicate have to learn ways in which they can feel they are making a contribution to society in order to become responsible and respected members of it. They have to learn compensations for many of the things nonhandicapped children take for granted. They also have to learn not to overcompensate and thereby become socially odious. The deaf and hard-of-hearing need help in keeping from developing attitudes of suspicion.

URGENT NEEDS

The status of special education programs for exceptional children is revealed by the facts that less than 30 states have an official giving even part-time to this work; less than 25 states have one or more giving full-time; and the fact already is noted that not more than 15 per cent of exceptional children are receiving any special education. The percentage of the school population needing some form of special education rivals the percentage of the total school population entering college.

PUBLICITY

The psychologist renders much valuable service in calling to the attention of educators the need for early examination and study of all children in order that preventive steps for indicated handicaps may be taken early, rather than waiting until corrective measures have to be instituted. He can more effectively break lockstep concepts and procedures in education than can any other professional worker. He helps the school administrator in getting the teachers to realize the facts of individual differences and to act in the light of those differences. In some instances, he finds it necessary to help teachers to educate their administrators even to tolerate, let alone encourage, adjustments to individual differences. Both administrators and teachers use the psychologist in educating the parents of children for whom special education programs are being arranged.

RESEARCH

The field of work with exceptional children needs not only the best thought and stimulation psychologists and educators can give it through research, but

also the social orientation of the sociologist and economist. Educators of exceptional children do not know for certain whether their work is efficient. Methods and contents of instruction have been carried over too uncritically from what seemed to be good procedure with nonexceptional children, or else they were developed by groups of specialists and adapted by school systems without adequate verification. It is yet to be shown objectively that various methods opposed by special educationists are undesirable.

Specifically, there is a research need for: (1) long-term, controlled evaluating studies, planned jointly by psychologists, educators, and sociologists, to see if the social products of the special education programs are in accord with its goals; (2) well controlled evaluations of the efficacy of isolated special classes or schools for separate types of exceptional children, and of special classes in which different types of exceptional children are grouped together, and (3) studies of the effectiveness of different approaches, such as the radio, telephone, television, the itinerant teacher, and the use of correspondence course materials, to the problem of instructing homebound children.

There is an urgent need for psychological research on the improvement and development of examination devices for use with exceptional children. The Binet and similar individual examinations seem to be reasonably effective with the mentally superior and the mentally retarded. But the meaningfulness of results obtained by such techniques with the blind and partially sighted, the deaf and hard-of-hearing, the orthopedic, the cerebral palsied, and the speech defective is questionable. There is even less exactness in the measurements of educational achievements, social adjustment, emotional adjustment, and vocational aptitudes of exceptional children.

A POINT OF VIEW

Why educate exceptional children? Are extra effort and expense in the interests of exceptional children justified? Some educators and a large part of the lay public maintain that it is not necessary to provide special opportunities for the mentally superior since they will assert themselves and get where they belong without help. But the question should be raised whether society might not be better off if all the mentally superior were discovered early and provided with better planned educational and social programs than we now have. Not a few educational thinkers maintain that if we diverted to the mentally superior the effort and expenditures now received by the mentally retarded we would have a better society in which to live.

A logical case can be made for the expenditures of effort and funds in the interests of the handicapped. One contention is economic. It is maintained that the handicapped children are likely to become social liabilities as they grow older and that through special educational provisions the likelihood of their becoming wholly or partly self-supporting is increased. This has been neither proved nor disproved.

A second contention is humanitarian and psychological. It is based upon the belief that the handicapped should at least be given a fair chance. Sometimes this view is a manifestation of a mistaken conception of the philosophy of equality of educational and social opportunity in democracy. Operating in place of this view is the psychological fact that if society, through its schools and other agencies, makes it possible for these handicapped pupils to find success and self-assertion, their social value as children and later as adults is likely to be greater than if they experience continual failure and frustration.

A third contention, often given primary emphasis, is that the program of the regular classes can be made more effective by removing the exceptional. This is sometimes mentioned in the same way as one would refer to the removal of a malignant growth. The regular classroom teacher often has to give a large part of her time to certain exceptional children, at a great cost to the rest of the class, and usually she is unable, because of lack of materials, time, and special training, to deal efficiently with the exceptional children in her room.

The primary value of making adequate educational adjustments to exceptional children must necessarily lie in the more adequate and more meaningful self-realization of each exceptional child. That society stands a better chance of profiting thus by their presence than if they were ignored seems hardly debatable. If such children are given special class opportunities, the children in the regular classes will receive more nearly their share of attention and highly specialized help, thus increasing the educational efficiency of the schools, but this must remain a secondary consideration. Crudely evaluated in terms of dollars and cents, many phases of the special education program may be hard to justify, but, in these instances, the humanitarian values, both to the children helped and to society for helping some

of its handicapped members, must dominate the picture.

READING REFERENCES

Baker, Harry J., *Introduction to Exceptional Children.* New York: The Macmillan Company, 1944.

Bentley, J. E., *Problem Children.* New York: W. W. Norton & Company, Inc., 1936.

———, *Superior Children.* New York: W. W. Norton & Company, Inc., 1937.

Board of Education of the City of New York, *Reports of the Committee for the Study of the Care and Education of Physically Handicapped Children in the Public Schools of the City of New York.* New York: The Board of Education, 1941–1942, "Physically Handicapped Children in New York City" (general report); "Acoustically Handicapped Children" (E. P. Fowler, ch.); "Cardiac Classes and the Care of Cardiac Children" (A. C. DeGraff, ch.); "Children with Speech Defects" (W. O. Klingman, ch.); "Children with Tuberculosis" (I. W. Woodruff, ch.); "Epileptic Children" (G. H. Hyslop, ch.); "Open Air Classes and the Care of Below Par Children" (I. O. Woodruff, ch.); "Orthopedically Handicapped Children" (B. P. Farrell, ch.); "Psychological Considerations in the Education of the Handicapped" (I. S. Wile, ch.); "The Education of Children in Hospitals and Convalescent Homes" (M. C. Pease, ch.); "Visually Handicapped Children" (C. Borens, ch.).

Carroll, H. A., *Genius in the Making.* New York: McGraw-Hill Book Company, Inc., 1940.

Frampton, M. E., and H. G. Rowell, *Education of Handicapped.* Yonkers: World Book Company, Vol. I, "History," 1938; Vol. II, "Problems," 1940.

Martens, E. H., et al., "Education of Exceptional Children and Minority Groups." *Review of Educational Research,* 1941, **11,** No. 3, 247–362.

Myer, Lester N., "Screening Visual Defects in School Children." *The Optometric Weekly,* 1946, **37,** 1555–1557; 1599–1601.

Newland, T. E., "Early Identification." *The Phi Delta Kappan,* 1940, **23,** 33–34.

Pennsylvania Department of Public Instruction, *Meeting the Needs of the Acoustically Handicapped.* Harrisburg: The Department, Bulletin No. 421, 1944.

———, *Meeting the Needs of the Mentally Retarded.* Harrisburg: The Department, Bulletin No. 420, 1939.

Pintner, R.; Jon Eisenson; and M. B. Stanton, *The Psychology of the Physically Handicapped.* New York: Appleton-Century-Crofts, Inc., 1941.

Scheideman, N. V., "Education of Exceptional Children." *The Phi Delta Kappan,* 1940, **23,** No. 2.

———, *The Psychology of Exceptional Children.* Boston: Houghton Mifflin Company, Vol. I, 1931; Vol. II, 1937.

63. EDUCATIONAL TEST CONSTRUCTION

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Measurement in education and psychology is a means of obtaining accurate descriptive information about individuals, primarily for purposes of guidance and evaluation. For guidance, information is needed which will make possible reasonably accurate predictions concerning the relative appropriateness for the individual of various types of future activities. For evaluation, information is needed which will assist in placing a value on past experience and present proficiency.

The record of any observation of individual behavior in a described situation provides descriptive information of this general type. Therefore, tests and measurements in the broad sense include any procedure used to obtain descriptive information about an individual. *The perfect test* would be a comprehensive record of an individual's behavior in all possible situations. All practical tests are samples drawn from *the perfect test.* Therefore, all conclusions drawn from a practical test are necessarily statistical inferences. These inferences are estimates of the individual's probable behavior either on a completely comprehensive test of the same nature or on some other related activity.

To assist in the interpretation of information gained from tests, it has become customary for test

makers to standardize them, that is, to provide: (1) directions for administering the test, (2) directions for scoring the test, (3) a precise definition of the contents of the test and the basis for selecting them, and (4) norms and other aids to the interpretation of scores. In general, the more precisely this information is given the greater will be the consistency of results obtained by several examiners when testing the same individuals.

BASIC PRINCIPLES OF TEST CONSTRUCTION

The fundamental concepts involved in constructing a test are validity and efficiency.

VALIDITY

This term is commonly used to refer to at least two major concepts: (1) the degree of success attained in fulfilling the plans as outlined for the construction of the test, and (2) the extent to which a test will predict other things. In the first sense a test is valid when, in the judgment of experts, the sampling of content and mental processes is similar to that indicated in the outline and specifications for the test. In this sense any particular test can have only one specific degree of validity, which is determined by the success of the test-constructor in selecting a representative sample of points for inclusion in the test and constructing the test items in such a way that they are answered correctly by those individuals who are proficient in the activity which is to be measured and answered incorrectly by those who lack such proficiency. In the second sense the degree of validity will depend on what the test is used to predict; a test might be valid for predicting success in one college course but not valid for predicting success in another course.

EFFICIENCY

In order to be of practical value, tests should provide maximum information about the individual in minimum time on the part of both the examiner and the person being examined. A test is efficient to the extent that it fulfills this principle.

OUTLINES AND SPECIFICATIONS FOR TESTS

DEFINITION

The first step in the construction of a test is the definition of the precise behavior to be measured. It is impossible to overemphasize the importance of thorough and competent work at this stage. The cooperation and assistance of those individuals who are best informed concerning the particular field being tested are essential and all available techniques of activity analysis should be used. The procedures, products, and materials of the field should be studied with great care. Individuals judged to be proficient in the field and also those judged to be especially lacking in proficiency should be observed in performing representative tasks and their behavior compared.

An issue which frequently arises in the definition of what is being measured is whether the characteristic may be regarded as a unitary or pure trait. In the educational field practically all measures must be regarded as summaries or averages. The thing which is important at this point in the development of the test is that the characteristic to be measured be defined in such a way as to make clear just what combination of elements is included and in what proportions.

SPECIFICATIONS FOR THE TEST

When developing the plans for a test, it is desirable to have in mind the purposes for which the test is to be used. This is especially important in deciding such general matters as length, format, and type of item to be used.

Before proceeding with the construction of the items for a test, the following materials should be prepared and submitted to individuals who are competent to criticize them: (1) a brief statement of the nature and function of the examination, (2) a detailed outline of the topics to be included and the activities to be used in answering them, (3) a brief justification of the outline based on the study of the activity, and (4) a description of the forms of items proposed for each part of the test with samples of each of the types to be used. Other things being equal, efficiency of a test is enhanced by using short items rather than long ones, items requiring short and simple directions rather than items requiring long and complicated directions, and an arrangement of items requiring only a few sets of directions rather than one involving many sets of directions. The test-constructor should make sure that a point cannot be tested by a brief, simple type of item before yielding to the temptation to design an unfamiliar and "fancy" type.

WRITING AND EDITING TEST ITEMS

Writing good test items of any type is much more

difficult than is commonly supposed. A simple factual item consisting of a short question followed by five words, one of which correctly answers the question, may be written in a few minutes. However, to write an item calling for the use of various facts and principles in deciding which of five suggested explanations of a described sequence of events is the most satisfactory will probably require an hour. Although an item may be very brief and require only a fraction of a minute for the student to select his answer, various critics and editors may find it necessary to spend ten or fifteen minutes apiece on such an item to make sure that the question is clear, the answer definitely correct, and the other choices clearly less satisfactory than the intended answer.

There are three important requirements of an effective test item: (1) the question or stem of the item must be expressed in clear, effective, unambiguous language so that the problem set for the student is quickly and easily seen; (2) the item must be factually correct; (3) the item must actually require the type of information, mental process, or other characteristic intended.

The rules for constructing test items properly are the same as those for a simple type of exposition. Grammatical correctness, conciseness, clarity, and freedom from ambiguity are important. In most situations, it is not desired to test the individual's ability to interpret the statement of the problem. Simple, brief statements should be the rule. It is usually desirable for an item to test one specific point. Therefore, the stem should not be "double-barreled" and the choices should be homogeneous.

Unless the reader has had an opportunity to examine a number of test items as originally written, it may appear to be emphasizing the obvious to mention that factual correctness is necessary. The more experience an individual has had in writing test items, the more he realizes the necessity for thorough and competent editing. This is particularly true of the more complex type of items, in which the possibility of overlooking certain interpretations or leaving out certain necessary qualifications becomes an important factor.

Levels of Proficiency. The most technical, and one of the most difficult, aspects of item writing is to construct the item so that it really requires the type of information, mental process, or other characteristic intended. For tests of proficiency or achievement, items may be conveniently classified into four fairly distinct levels: facts, generalizations, applications, and significance. The first level involves the *recognition or recall of simple facts and events,* such as:

The sum of two plus two is . . .
The meaning of the word "curtail" is . . .
The date of the discovery of America is . . .

The second level involves *generalization and the integration of these elements into an ordered system.* This level includes the comprehension of various principles, laws, and generalizations and the identification of specific occurrences which illustrate the nature and operation of a given one of them. Examples of such items are:

An illustration of the operation of the principle of buoyancy is . . .
An instance in which the results of subtracting equals from equals are equal is . . .
Of the following the best example of democratic procedure is . . .

The third level includes those items which involve the *use of a principle, law, or generalization to obtain the solution to a practical problem.* This level includes all types of problem-solving in which the individual is required to analyze the situation to determine what principles should be used in solving the problem and then to apply these principles to the specific new situation. Such items are illustrated by the following:

Given a voltage of 110 volts, how much resistance will be necessary to limit the current to 10 amperes?
If a bond which costs $850 may be redeemed in ten years for $1250, what rate of interest is being earned?
If in a given year there is a 5 per cent increase in the sale of seed wheat, the price of wheat the following year may most reasonably be expected to be . . .

The fourth level involves the *interpretation of the significance of the various facts and principles for the individual and for society.* This level is principally concerned with seeing the personal and social implications of present knowledge in a particular field. The items at this level are concerned with the appreciation of the nature, value, and place of particular elements and principles in the general scheme of things. The following questions illustrate this type of item:

Which one of the following activities has been most affected by the application of the laws of induced electric currents?

The most fundamental of the following sciences is . . .

In which one of the following typical daily activities are the principles of individual liberty of most importance?

It is evident that this technical aspect of item writing, the problem of effective expression of the ideas, and the matter of factual accuracy in the particular field strongly suggest the collaboration of a variety of editorial assistants in the criticism of test items. It is also important that criticism be obtained from teachers. Finally, the items should be discussed with students to check on their interpretation of the question and their comprehension of the task set by the item.

Although the importance of outside criticism cannot be overemphasized, an alternative in cases where this is impracticable is for the writer to examine the items himself several weeks after they were originally written. Another practical device which reduces the task of item writing substantially is to develop the habit of being alert for test-item ideas in the course of routine day-to-day activities. Such ideas should be entered on cards and dropped into a test-item file. This procedure is especially helpful if the outline and specifications for the test are prepared considerably in advance of the date on which the items are to be written.

THE SELECTION OF TEST ITEMS

The experimental tryout of items and the use of statistical indices obtained from tryouts *cannot* be substituted for competence in the preparation and editing of the items, or for the proper planning of the outline and specifications for the test. However, even test items which have been written and edited by experts may be ineffective or in need of revision when they are used in a test situation.

The selection of items by means of a study of their statistical characteristics as found by analyzing the responses made to them by various groups can be used either to get greater validity in a given period of time or to decrease the period of time necessary to obtain a required degree of validity. The characteristics useful in selection are: item validity (discrimination), difficulty, inter-item correlation, time required per item, objectivity, face validity (acceptability), and answer defensibility.

Items are analyzed either by studying the characteristics of groups of individuals who respond to an item in various ways; or, more frequently, by dividing the individuals into groups on the basis of their rating on a known characteristic, which is called the criterion measure, and tabulating the proportion of them who respond to the item in a particular way.

The simplest methods of item analysis begin by dividing the test papers that are to be studied into a high and a low group. It has been shown by Kelley (1939) that it is usually most efficient to have about 27 per cent of the total group in the "highs" and a similar percentage in the "lows." The proportions of the "highs" and "lows" responding to a given item in each of various ways are then tabulated and compared. To obtain the maximum separation of the scores of the "highs" and "lows," it is necessary only to select those items for which the difference between the proportions of "correct" answers for these two groups is the largest. For certain other purposes it is sometimes desirable to find correlation coefficients which correspond to these proportions and use these together with "difficulty" indices for the item in selecting the final set of items. The "difficulty" of an item is usually indicated by the percentage of a given group that answers it correctly. It can easily be shown that items which are answered correctly by half of the group perform the most individual discriminations in a particular group. However, when the item is to function in combination with other items, it is usually desirable to include items representing other levels of difficulty. Also, in certain tests designed for specific purposes, such as assigning scholarships, some very different distribution of difficulties may be desired.

Although the two factors of item validity (or discrimination) and item difficulty are usually regarded as the primary considerations in the selection of test items, they are by no means the only considerations. For example, the factor of the correlations among the various items, although shown to be of only minor importance for certain types of tests, may, in particular situations, be of great importance. The simplest method of controlling this factor is by the test outline, that is, by selecting items according to the proportions indicated in the logical categories of the outline. This requirement sometimes dictates the selection of items having rather low validity indices, especially if the validities (consistencies) are based on the correlation of the item with the other items in the test, but the

inclusion of these items increases the true validity of the total test.

Two other considerations of importance in selecting items in particular situations are: length of time required per item, and objectivity of scoring. It is sometimes possible to select one hundred short items for a test which can be administered in the same amount of time as a test made up of fifty longer items. If this is the case, it is likely that the 100-item test will have the greater validity even though most of the individual items in it have somewhat lower validity indices than those in the 50-item test. Objectivity of scoring is almost entirely a practical consideration, but becomes of great importance in certain situations.

The remaining two criteria for the selection of test items are definitely of only secondary importance from the point of view of measurement, but under certain circumstances are the predominating factors. The first of these criteria is "face validity." By "face validity" is meant the requirement that the items in an examination *appear* to measure the function that the examination is intended to measure. The second criterion is defensibility or the authoritativeness of the correct answer. By this is meant the ability of the examiners to convince interested persons that the answer given by the examiners is the correct one.

THE ORGANIZATION OF A TEST

A problem closely related to the selection of items for a test is their arrangement in the test booklet. This includes such matters as grouping, parts, item order, repeating scales, spatial arrangements, and printing. In early tests, parts were used principally for separating various types of items, such as multiple-choice, true-false, or matching. At present, parts are usually utilized to obtain certain diagnostic information or to insure a proper allocation of time to divisions such as computations and verbal problems. Occasionally separately timed parts are used solely for the purpose of giving the individual a fresh start and stimulating him, and to prevent his spending too much time on any one question. It is undesirable, however, to break up a test into a large number of short sections, since it may tend to interrupt the student just as he is beginning to adapt himself to the particular type of item.

Most tests in the educational field have time limits. These are almost always used as a matter of administrative convenience in planning and scheduling the student's time. For tests which have time limits, it is usually desirable to arrange the items in order of difficulty, beginning with the easiest items and working up. This plan helps to reduce the effect of speed on the individual's score, since a large proportion of the testees have the opportunity to try most of the items they would be able to do. A more effective way of separating speed and power is to use a number of equivalent "repeating scales." Each scale is a complete miniature test in itself, and the power or "level" score of the individual is his average score on the scales completed. The regular score, which is a "speed" score, is the total number of items correctly answered on all scales.

In arranging the items of a test (including the choices and answer spaces) on a page and in planning the type faces to be used, three considerations should be given special attention: (1) the convenience of the individual in grasping the question and locating and indicating the correct response, (2) the convenience of the examiner in administrating and scoring the test, and (3) the cost of printing or reproducing the test. While it would be desirable for the first factor always to be the controlling one, this is impractical in many situations. It should, however, at least provide the basis for the selection from among more practicable if less desirable procedures. The following general rules may be regarded as suggestive of the points to be considered:

1. Use a simple type face in 10 point, or larger, with 2-point leading between lines.
2. Avoid too great length of line. Three or four inches is probably best when using 10-point type.
3. Use bold face type for emphasizing key words, important data, or part and section headings.
4. Use bold face type, italics, or different sizes of type to obtain desirable contrasts, as between item-stem and choices, a foreign language and English, or directions and items.
5. Make the separation of the various choices and their numbering definite by some such device as listing in vertical order.
6. Print all of the data related to an item on the same page, that is, do not make it necessary to turn the page to find the last choices or the reading passage to which comprehension items refer.
7. When the time and cost of scoring are important factors, have the student do part of the clerical work by such a procedure as recording his answers in a vertical row at the right-hand edge of the page or on a separate answer sheet.

In summary, a test should be logically arranged

according to subject matter, and simple in its typographical arrangement.

EQUATING THE FORMS OF A TEST

A fundamental necessity in any test of which more than one form is published is *comparability* between the scores obtained from the several forms. For two forms to be *comparable,* the mean scores of any large group of the same type must be the same on one form as on the other. It is usually not practicable to construct forms in such a way that the raw scores are precisely comparable. Therefore, it is generally necessary to *equate* the various forms.

A common method of obtaining the data necessary for equating forms is to administer the two or more forms to all of the individuals in a particular group. To equalize practice effect and control administrative conditions, half of the group takes the first form first and the other half takes the second form first. If the test is long or if more than two forms are involved, this technique often becomes impractical. In this case, the procedure generally used is to administer each of the several forms to matched individuals within various groups. With this procedure, it has usually been found best to equalize such administrative factors as timing, testing conditions, and instructions by having the two or more forms administered together. This is very simple when, as is usual, the forms have the same directions for administering and the same time limits.

If the forms being equated have approximately equal accuracy of measurement, the table of equivalent scores for the various forms may be obtained by calling equivalent the scores below which an equal number of cases fall. In practice, equivalent scores are most satisfactorily obtained by plotting points on a graph, the coordinates of which are the corresponding scores on the two forms below which specified number of cases fall. A smooth curve is drawn, passing through as many as possible of these points and the equivalent scores are read from the curve.

The comparability of two forms must be regarded as relative to the groups used in obtaining the equivalent scores. Unless two items are identical, the fact that equal proportions of individuals respond correctly to each of them in one group cannot be accepted as indicating that the items will be found to have equal difficulty indexes in other groups. While not invalidating the general procedure for equating forms, this fact certainly emphasizes the need for a large and representative group on which to base the comparable scores. No arbitrary number can be set, but it is usually considered advisable to administer both forms to six or seven hundred individuals. Four hundred is regarded as practically an absolute minimum. Of as great importance as numbers, however, is the necessity that the individuals used be representative of those whose scores are later to be compared and that the various score levels throughout the range of the test be adequately covered.

The foregoing discussion applies also to the problem of obtaining comparability between tests in different fields. However, in this situation the large specific factors in the several tests require much wider and more representative sampling to obtain useful results than is necessary for forms of the same test.

THE SCALING OF RAW SCORE UNITS

For many reasons raw scores do not ordinarily provide the most satisfactory units to use either for purposes of comparing and interpreting individual scores or for statistical analysis of test data. A system of *basic units* is needed which will facilitate the use of test scores in establishing relationships and making quantitative comparisons. Many types of scores are in use, such as grade scores, age scores, percentile ranks, sensed-difference scores, growth scores, standard scores, and normalized scores. Although each of these types of scores has its advantages, the *normalized scores* appear to provide more adequately than other types of scores the kind of basic units that are needed. In obtaining such scores, the groups in which the test performance is normalized must be selected with care. Probably the most useful normalized scores can be secured by obtaining units that normalize the distributions of scores from several overlapping groups each of which represents a single grade group within a particular school system. The details of such scaling were reported by Flanagan (1939).

For crude exploratory work, raw scores will usually be found quite satisfactory. It should be noted that discussions of such points as the equality of units obtained from psychological and educational tests are essentially academic and of only limited practical importance. What is required is units which will be useful in practical situations and, although equal units would be more useful if obtainable, other types of units, the equality of which has not been established, do provide relatively satisfactory results in many situations.

TECHNIQUES FOR SCORING TEST ITEMS

The accepted procedure for scoring short-answer or objective tests is to give one point for each item correctly answered. In scoring multiple-choice items in which a person without knowledge of the point tested has an opportunity to respond correctly by purely random guessing, it is desirable to subtract a fraction equal to the number of correct choices in the item over the number of incorrect choices for each incorrect answer given. This tends to produce a zero score on items marked in a chance fashion. An equivalent procedure is to add a fraction equal to the number of correct choices in the item over the total number of choices in the item for each item omitted (not marked). These procedures usually give satisfactory results, and it is only in special situations, such as are represented by personality and interest tests, that allowing variable weights for particular items and responses appears to be justified.

Weighting parts of an examination before combining them to obtain a total score is a more common procedure. In planning a test, it is customary to weight the various categories in the outline by assigning each category a particular number of items. All that is necessary to increase the weight of a specific point is to put in another item testing it. However, practical considerations sometimes make this undesirable, as in the case of a test of arithmetic involving simple computations and verbal problems. Even though a substantially greater amount of time is assigned to the part on verbal problems, there will ordinarily be far fewer items of this type than of a computational nature. In such a situation, it is usually desirable to increase the weight of the problem score before combining with the other score. If a test is used predominantly for a single purpose, such as the prediction of success in college, the parts may be assigned the weights which have been found to give the most satisfactory prediction.

In accomplishing the actual mechanics of scoring tests, it has been found most efficient to get the responses indicated in as compact form as possible. A separate answer sheet on which all answers are indicated by position rather than by symbol is frequently used. Such an answer sheet may be scored either by placing a stencil over the sheet and counting the correct and incorrect responses, or, if it has been properly marked on a sheet designed for that purpose, on a test-scoring machine. Such machines usually score, add, and subtract almost instantaneously so that the scoring of a test is only a matter of a few seconds. The use of a separate answer sheet introduces a clerical ability factor into the test results which is probably negligible in tests where speed is not a factor but may distort results on short speed tests.

THE PROVISION OF NORMS

The basic purpose of testing is to obtain useful information about an individual or group in an efficient and reasonably precise manner. The five primary ways in which an individual's performance on a test may be interpreted are:

Absolute Performance in Terms of Content. For example, a score expressed in terms of the percentage of a group of questions correctly answered may be regarded as an absolute description of the individual's performance in contrast to one which is relative to other individuals or groups. Similarly, a statement that a particular score indicates probable knowledge of the meanings of 9,000 of the 10,000 words of a particular dictionary is an interpretation in terms of absolute performance with respect to content.

Relative Performance in Terms of Rank in a Specified Group. The use of ranks in describing test performance is illustrated by such statements as: "This individual's score exceeds those of eighteen of the twenty-five students in his class," or "This score exceeds those obtained by 62 per cent of a large group of ninth-graders throughout the East, Middle West, and West." In making this type of comparison, the equivalent percentile rank of a score in terms of the scores made by the individuals in the specified group is the most common method of interpretation.

Performance with Respect to That of the Average Individual in Various Specified Groups. The most common illustrations of this type of interpretation are statements comparing a particular score with the average scores of age or grade groups. Examples of such statements are: "This individual's performance is equivalent to that of the average ten-year-old." "This score is equivalent to that of the average individual at grade 6.7."

Performance with Respect to the Individual's Own Previous Performances. This procedure is commonly called the interpretation of scores in terms of "growth," though it is quite possible for the later performances to be inferior to the earlier ones. Information such as that given in the statement: "An individual's score is equivalent to that of the average person at a grade level 1.3 points higher than that of his previous score," has been found very useful.

PERFORMANCE WITH RESPECT TO THE INDIVIDUAL'S PERFORMANCE IN OTHER FIELDS. The "trait differences" revealed by this type of comparison are of fundamental importance for effective guidance and instruction. It is helpful for the counselor to know, for example, that the relative standing of the individual has been much higher in science and mathematics than it has been in English and the foreign languages.

It is clear that the procedures to be used in interpreting test results will depend to a great extent on the use to be made of the results. For tests that are to be widely used for a variety of purposes, all of the above methods of interpretation should be available. The information provided to assist in the interpretation of scores on published tests is usually inadequate as a basis for making any one of these five types of interpretation in a satisfactory manner.

OTHER FACTORS IN THE INTERPRETATION OF TEST RESULTS

The interpretation of test scores involves several other factors. One of these is the effect on performance of the practice resulting from previous experience with the same or a similar form of the test. Although there is no general solution to this problem, the "practice effect" tends to be rather small for commonly used types of tests if directions are brief and speed is not an important factor.

A related factor of importance in interpreting test scores is that of *motivation*. It has been clearly demonstrated that even the changing or addition of a single strategic sentence in the introductory remarks to students taking a particular test may alter their scores significantly. Here, again, the performance is most variable in situations in which speed is a substantial factor.

Such factors as *guessing or scoring errors* must not be overlooked in interpreting test results. Tests of the recognition type afford a much greater opportunity for guessing than do those of the recall type. Individual variations in the tendency to guess sometimes lead to large errors, especially when no correction is made on the basis of wrong answers. Such a correction is therefore always recommended for multiple-choice or other types of examinations on which differences in the extent of guessing may have a substantial influence on the score.

When tests are scored by untrained teachers or clerks, many large scoring errors may result. Over a period of years it has been well established that tests scored even in usually efficient school systems often contain so many scoring errors that the standard error of measurement is doubled. Of even greater importance than the many small errors are the occasional large ones. These large errors may sometimes seriously affect the guidance and placement of the particular individual concerned.

The final factor to be discussed in connection with the problems of interpreting test scores is the *accuracy* of the scores. The most useful kind of information of this type would be the limits of the range in quality of the performance, in the broader field being sampled or to be predicted by the particular test, which could be expected of individuals obtaining a specified score on the test. At present, the test user cannot obtain information of the latter type and must content himself with information concerning the range within which the individual's performances on comparable forms of the same test could reasonably be expected to fall. This information is usually expressed in terms of the standard error of measurement. If desired, such a standard error of measurement may be converted into a "reliability coefficient" for a group of specified variability of performance.

READING REFERENCES

Adkins, Dorothy C., *Construction and Analysis of Achievement Examinations.* Washington, D.C.: U.S. Government Printing Office, 1947.

Engelhart, M. D., "Unique Types of Achievement Test Exercises." *Psychometrika,* 1942, **7**, 103–116.

Flanagan, J. C., *The Cooperative Achievement Tests: A Bulletin Reporting the Basic Principles and Procedures Used in the Development of Their System of Scaled Scores.* New York: Cooperative Test Service, 1939.

———, "Statistical Methods Related to Test Construction and Evaluation." *Review of Educational Research,* 1941, **11**, 109–130.

Hawkes, Herbert E.; E. F. Lindquist; and C. R. Mann (eds.), *The Construction and Use of Achievement Examinations.* Boston: Houghton Mifflin Company, 1936.

Mosier, C. I.; M. C. Myers; and H. G. Price, "Suggestions for the Construction of Multiple-Choice Test Items." *Educational and Psychological Measurement,* 1945, **5**, 261–271.

Remmers, H. H., and N. L. Gage, *Educational Measurement and Evaluation.* New York: Harper & Brothers, 1943, Chap. 9, "Constructing Short-Answer Tests."

Thorndike, Robert L., *Research Problems and Techniques in Personnel Psychology.* New York: John Wiley & Sons, 1949.

64. ACCELERATED HIGHER EDUCATION

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Soon after Pearl Harbor the National Conference of College and University Presidents recognized "the increasing demand for men and women trained in technical skills and professions essential to total war," and urged that "all institutions of higher education should give immediate consideration to ways and means for accelerating the progress of students" (Marsh, 1943). Acceleration thus became the wartime educational watchword to such an extent that it is now often thought a special expedient originating with the war, and important thereafter only as special needs may briefly continue. And since during the war acceleration was accomplished almost entirely by extension of the school year, an accelerated program is now often assumed to be simply synonymous with such extension. It must therefore be emphasized that the concept of acceleration has a long history, that the problems involved are basic and of increasing importance, and that expedited educational progress can be brought about by various means, most of them better than a lengthened academic year. Acceleration is defined as moving through an educational program in a shorter time or at earlier ages than is usual. Two questions are then raised: What are the most desirable ages for a given educational program, and what are the optimum rates of progress through it?

AGE AND EDUCATIONAL PLANNING

The issue as to desirable age for college entrance has long been a matter of debate. At the 1888 meeting of the National Educational Association, President Eliot of Harvard argued that students were entering college and beginning their careers too old. His successor, Lowell, continued the agitation, declaring that "The period of education is too long. Disease and death are not postponed because a man starts upon the practice of his profession a year or two later than is necessary. . . . Much has been said about maturity, but that is the result less of age than of environment and responsibility. Maturity may easily become overripe" (Lowell, 1934). A considerable number of investigations agreed in showing that younger students had best academic records, presented fewer disciplinary problems, scored highest on objective tests covering college work, and though sometimes socially maladjusted, on the whole participated in activities and showed campus leadership about as much as those of average age (Keys, 1938, Learned and Wood, 1938). These findings were in spite of the fact that the younger, though tending to be of superior ability, had for the most part not been advanced on the basis of systematic selection or guidance, or aided in adjustment. Instead, students entering at ages older than average presented the most problems of all types. The excellent college record of many older returned servicemen seems in contradiction to these prewar findings. There is grave danger of hasty conclusions here. A young man in college after four years of participation in the greatest war in history, and more travel and more varied experience than before the war came to most people in a lifetime, should be both intellectually more mature and more widely informed than prewar college students. It may not follow that under ordinary circumstances it is better for a lad to enter college at nineteen than eighteen, or eighteen rather than seventeen. And, there is a further issue of major importance which must be considered in this connection.

Contrary to a common notion that early college graduation is (because of initial presumed immaturity or maladjustment) a handicap to adult career, considerable scattered evidence suggests multiple advantages in this respect also. College graduates mentioned in *"Who's Who"* have been found aver-

aging over a year younger at graduation than the typical alumni—a finding unanalyzed as to cause but at least not against early graduation. An intensive study of the complete alumni records of an eastern college showed youngest graduates more often nationally known than those graduating older, and there was evidence to indicate that superior ability of the younger graduates was by no means the only determining cause. A more clean-cut study compared women who graduated at the age of twenty from a College of Education with others graduating at twenty-two, but in the same class and paired with the younger as to ability at entrance and academic record; more of the younger had successful professional careers (Jones, 1935; Pressey, 1946; Flesher, 1945). Sundry data have suggested that later completion of full-time education has tended to delay marriage and possibly been a factor in the unfortunately low birth rate for parents with college or professional training. Most important are data regarding age of the prime, which give both support and possible explanation for such findings. Illness and death are least frequent in the late teens and twenties; strength and skill as shown by tests, and by championships in sports, are greatest in the twenties. In short, a variety of evidence indicates that the physical organism is at its prime in early adult life. And, as might be expected, there appear to be relationships between such findings and evidences as to the time of greatest total intellectual vigor and capacity for constructive work. Tests of "mental alertness" given to adults show highest average scores in the twenties. Interests appear to be most vigorous and wide-ranging then. And extensive studies have shown that famous men in a great variety of fields have done their best creative work most frequently in the twenties and early thirties. It seems reasonable to argue that a man should complete his full-time education and get into his career early enough that these best years of young adulthood can go into life work.

Getting established in adult life involves more than life work, however. Delayed education tends to delay marriage and establishment in community life. Yet before the war median age at which men received an undergraduate degree was 22.9 and doctorate at 32.7. Interruptions of education by the war caused completion of education at yet older ages. In the future, required military training or other exigency may continue to delay the completion of higher education.

In brief, there is much to argue that before the war higher education in this country was for many reaching further into the adult years than was desirable. Now the great number of older students makes the issue more important than ever before. The question then is, what steps are there that might be taken to facilitate progress through educational programs.

TIME-SAVING IN EDUCATIONAL PROGRAMS

Again a considerable historic background is to be noted. "Time-saving in education" was a major educational topic twenty years ago. Research showed much overlapping and duplication, the elimination of which should save time. A considerable number of investigations showed students entering a college from 11-year precollege programs doing about as well in college as those with the usual twelve years of preparation. Sundry experiments in which superior students at various levels in the public schools were selected according to ability and then given opportunity to progress more rapidly than the average (for instance, to complete a 3-year junior high school program in 2 years) quite generally showed these pupils doing well academically in senior high school or college and at least after a brief period of adjustment fitting well into student life. Sometimes gains in maturity were reported. Certain of these studies were very carefully controlled, comparison being with students of the same ability, academic record, and age at the beginning of the experiment, but who progressed at the regular rate (Engle, 1930; Shouse, 1937; Unsicker, 1932; Herr, 1937; Wilkins, 1936; Alltucker, 1939; Ditchen, 1939). During the war, some colleges admitted superior high school students prior to high school graduation. The few studies of these cases thus far reported show them to have done well academically and in adjustment to college life. Since the war, some veterans who had not completed high school have been admitted to college on the basis of superior test scores or other similar evidence, and seem also to have done well (Berg, 1945; Dammon, 1944; Love and Love, 1947).

Efforts to bring about progress through an undergraduate program in less than the traditional four years also have a long history. For twenty years the Clark undergraduate course was three years, and Yale's Sheffield Scientific School long granted the Bachelor of Science degree after the completion of a 3-year course. In 1913 a committee of the National Education Association stated that "The period of

general education is too long . . . with greater efficiency in earlier periods, college courses may well end at twenty instead of twenty-two" (United States Bureau of Education Bulletin, 1913).

However, the 4-year undergraduate program had become standard before the war. During the war, opportunities to complete most programs of higher education in shorter than the conventional time were made available (as mentioned at the beginning), and almost entirely by extensions of the school year. This was done most sweepingly in medicine. As a result, by June 1945 the output of the medical schools had been increased about one-third (Journal of AMA, 1943 and 1945). In other fields the draft interrupted the educational plans of most men, but a large proportion of those men remaining accelerated, as did also many women. Thus the number of graduates in the colleges of Agriculture, Arts, Commerce and Education at the Ohio State University who had covered a 4-year undergraduate program in three years or less jumped from one per cent before the war to 23 per cent in 1944–45.

How have shortened programs worked? No real comparative appraisals of the prewar 3-year programs seem to have been made. Faculty judgments of wartime acceleration have generally been adverse; the lengthened academic year was found burdensome, and the pressures and handicaps of the war period (especially staff shortages) compounded every difficulty. In professional programs such as medicine, the burden on the average student seems to have been too heavy. In typical undergraduate curricula, the effects on the students seem actually to have been less unfortunate than commonly supposed. At Ohio State University a variety of evidence was obtained, including careful comparisons in which women finishing in three years or less were paired with others taking the usual time but entering at the same age, taking the same type of college program, and of essentially the same ability on the test given at entrance. The reductions in time were gained for the most part with no lowering of academic standards, no substantial interference with participation in campus life, or other discernible unfortunate effect. Two experiments involved careful selection of individuals for acceleration on the basis not only of ability, but also of total maturity of personality, and a continuing guidance in acceleration to assure work adjusted to each student's capacities, and a total rounded development. Again outcomes were favorable as regards both academic work and campus status. Distinctive was this: that about 40 per cent fewer of these students dropped out of school without obtaining a degree than students of equal ability who did not attempt rapid progress. This outcome is understandable: students of limited means or under other urgency would be more likely to complete a program if they could do so quickly (Flesher, 1946; Peterson, 1943).

As mentioned earlier, wartime acceleration was predominantly by lengthening the school year, a means often exhausting for the faculty and for students in the more rigorous professional programs, and interfering with faculty research or travel and student work or other nonacademic experience often desirable for broad development of personality. That the above-mentioned findings regarding outcomes of acceleration were on the whole good, would suggest that, in the less difficult curricula, many students found the lengthened year not unduly taxing or limiting. Research has repeatedly shown that many abler students can take heavier course loads than usual without unfortunate outcomes academically or otherwise. It has also been repeatedly shown that giving able students credit by examination, for very superior preparation or independent study, is justified in terms (for instance) of superior work in later courses in the same field. Several experiments agree in showing that, if in large courses superior students are grouped in special sections meeting one 2-hour period a week instead of three or five regular meetings, they do superior work in spite of the fewer class meetings and can take an added course in view of the saved time (Reeder, 1946; Garrett, 1946; Worcester, 1945). Unfortunately, these last two means for acceleration have been little used, though they save time for both students and faculty and cumulatively distinguish and help the ablest students. More generally it would appear that use of a greater variety of means for rapid progress would make such progress more feasible and more satisfactory in outcomes.

APPRAISAL AND SUMMARY

In summary, the following points seem especially important:

1. The problem of desirable age of completing programs of higher education has been long recognized and discussed, was increasingly important but neglected before the war, and is now far more insistent than ever because of the great number of older students returning to college. These problems should be adequately considered in terms of "life

span" psychology, and policies formulated with reference to them.

2. Research before the war, during it, and since, has made clear that graduation from secondary school is an inadequate indication of competence to do college work, and that there should be other means permitting superior and mature individuals to move directly into collegiate programs irrespective of such graduation. It would appear also desirable that able young people anticipating long programs of collegiate and professional training should move into those programs at an earlier age than has been usual.

3. During the war, acceleration was almost entirely by extension of the school year—a method burdensome on faculties, and tending to interfere with students' field or intern training in professional programs and more generally with desirable work or travel experience. Acceleration by heavier loads, credit by examination, and special programs for superior students have been all vindicated by research, but little used. In spite of the fact that the least satisfactory method (the extended school year) was the most common, most students appear to have accelerated without deleterious outcomes as regards quality of academic work, serious restriction of participation in campus life or other untoward outcome. Such findings would indicate that the usual academic program is paced for the average or somewhat below-average student and that the more able and intellectually mature may find a more rapid progress really natural for them. More flexible programs, involving more extensive use of credit by examination, and special programs perhaps of the "honors" type but designed for rapid progress for the superior, should make possible substantial savings of time for them, with even less by way of unfortunate results.

4. In spite of the relatively satisfactory outcomes of acceleration for the more mature student, the tendency is now toward a return to prewar normalcy of programs. The great problem seems not in any difficulties which students need suffer if programs are made flexible so that the able may progress rapidly, but rather in the inertia of the enormous total institution of American education, which has made twelve years of precollege preparation and four years of college, and the usual school calendar, a basic pattern for student life and faculty habits of thinking, and more generally a scheme of things taken-for-granted by the literate public. However, as General Bradley remarked in an address to the American Council on Education, "Where changes are required in schedules, techniques, and materials—there never was a better time to change." Courageous practical experimentation, now, could introduce a new flexibility into American Education, bring economies of staff and facilities, add years to career and the fulfillments of established adult life for the ablest students, and better adjust program to needs for all.

READING REFERENCES

Berg, I. A., and R. P. Larson, "A Comparative Study of Students Entering College One or More Semesters before Graduation from High School." *Journal of Educational Research,* 1945, **39,** 33–41.

Flesher, M. A., "An Intensive Study of Seventy-six Women Who Obtained Their Undergraduate Degrees in Three Years or Less." *Journal of Educational Research,* 1946, **39,** 602–612.

Keys, N., *The Undergraduate Student in High School and College.* Berkeley: University of California, 1938.

Learned, William S., and B. D. Wood, *The Student and His Knowledge.* New York: The Carnegie Foundation for the Advancement of Teaching, 1938.

Pressey, S. L., "Acceleration: Disgrace or Challenge?" *Science,* 1946, **104,** 215–219.

———, "Time-Saving in Professional Training." *American Psychologist,* 1946, **1,** 324–329.

CHAPTER X

FIELDS OF EDUCATIONAL PSYCHOLOGY

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65. CHILD DEVELOPMENT

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Much thought and practice in modern society revolves about children. In the nineteenth century, public education with its concern with older children became a part of our culture. It remained for the present century to develop great interest in the young child and to see clearly the importance of the early years in the life cycle. In this movement psychology has played an important part and has received much in return.

At the end of the last century, G. Stanley Hall, who stimulated early research on children was greatly interested in the practical application of psychological knowledge in the child study and kindergarten movements. After 1907 great strides were made in the study of school children, under the impetus of the mental test movement, started by Binet and carried into widespread applications by Thorndike, Terman, and many others. Paralleling these practical developments there came three theoretical movements which emphasized development and turned the attention of scientists to the early years. Watson made observations upon the reflexes, patterns, and emotions of the infant, the crucial reference points for his major systematic position. In Europe, the Gestalt psychologists and in the United States the biologists and psychologists studying embryonic and foetal development developed the organismic point of view. Freud and his followers stressed the significance of early childhood conflicts as determiners of adult neurotic behavior. These trends converge in the modern field of child development, which received great impetus after World War I through the establishment of a number of centers for the study of children. These centers had both scientific and practical purposes: they conducted basic research on younger children, often setting up infant laboratories and nursery schools to secure subjects; trained workers with children; and carried on parent education programs that sought to bring knowledge about children directly to parents and the community. Because the psychologist had struggled with the problems of human behavior for many years and had a variety of research tools available, as well as a theoretical interest in the origins of behavior, he moved into this developing field with insight and made significant contributions. In the main, the centers for research on children were administered by psychologists.

As work with young children progressed, two interesting trends appeared. The first involved the cooperation of scientists and practical workers from different backgrounds and disciplines.

MANY DISCIPLINES

Behavior at any moment is an end-product that is determined by many factors, certain of which arise out of physical makeup and physiological states, while others are related to immediate stimulation, the social context, and the cultural environment. What the child does is seldom the result of a single stimulus, or even of a limited pattern of stimulation; but the outcome of many interrelated phenomena. To study these interrelations the efforts of various scientific workers are needed. Hence, in studies at the prenatal, infant, and preschool levels, scientists from various fields—anatomists, anthropologists, pediatricians, physiologists, psychologists, psychiatrists, sociologists, and educators—have been cooperating for some time.

INTERPLAY OF SCIENCE AND PRACTICE

The second concerns the interplay of science and practice. At any one moment there are millions of children who in time will become adults. They are not a limited or special group, but a whole segment of society about which there is much concern and in which almost unlimited opportunities for practical and professional contributions exist. In discovering children, the scientist did not create them; they existed before he came on the scene and have

been in existence in great numbers through many ages. They are cared for by parents, taught by teachers, treated by physicians, and make some contact with almost every agency or profession in modern society. As soon as scientific interest is shown, practical applications appear which pose more scientific problems. An interaction between science and practice is set up that makes a huge and important activity out of an area that was previously inert. This holds true particularly in any field that deals with children. The demand for practical information, assistance, and guidance in the affairs with which every parent and teacher struggles daily, impinges on the scientific worker interested in children and gives him a prestige with parents and others in the community that often outruns his scientific attainments. Because a particular generalization may affect practice with thousands and millions of children, the scientist should be cautious and accurate.

As a result of this scientific and practical concern, progress in our knowledge of young children within the last three decades has been phenomenal. Literally, at present it can be said that the prenatal field, the infant field, and the preschool field constitute scientific domains in themselves, and that a very large amount of scientific material and knowledge is available for practical purposes. Further, as a result of the scientific study of children, thousands of persons have moved out into the exploration of the practical possibilities within the field and new lines of professional research have been created. Two professional organizations integrate the activities of many of the research workers in the field: (1) the Society for Research in Child Development, composed of workers from various scientific fields and (2) the Division on Childhood and Adolescence of the American Psychological Association.

RESEARCH ON YOUNG CHILDREN

Through research our knowledge of children, of homes, and of schools has been enriched in many ways. Old methods have been modified and new ones have appeared. Both the cross-section approach (the study of samples of children drawn from the population in similar ways at successive ages) and the longitudinal approach (the study of the same children over a term of years) have given much information on physical, motor, linguistic, intellectual, emotional, personality, and social development in infancy and early childhood, and to a somewhat lesser degree in later childhood and adolescence. By means of follow-up studies made on adolescents or adults who had been examined as children, additional data on developmental and practical problems has been obtained. In the main these studies consider the child as the independent variable and ask what the child is, how he behaves, and what kind of world he creates for himself as he goes along. These studies have also provided normative data that is useful for the diagnosis and classification of children, both normal and handicapped, at various age levels. Emphasis is placed upon the continuity of the growth process and each successive phase is looked upon as a part of the life cycle. Out of studies of this type has come the widespread use of cumulative records for the study and guidance of children.

A second major area is concerned with the effect of the environment upon behavior. What types of play material increase social participation? What is the effect of frustration upon adjustment? What are the outcomes of "good" and "poor" environments on motor, linguistic, and social skills? How does this method of teaching compare with that? Experiments and observations cover the entire range from simple stimuli to long continuing contexts. For example, in studies of child management and discipline, studies treat the effect of specific methods of giving commands and suggestions, the effect of schoolroom atmospheres, and the effect of long continued home practices. In contrast to earlier studies which moved backwards from end results (children already delinquent or normal) to background and developmental factors, modern studies move forward from children selected by various sampling techniques, who are then exposed to appropriate stimulation and the end results in behavior determined. In time the essential environmental factors which determine behavior should become clearer to us and bring more understanding of children and improvement in practical care.

From the laboratory, which is limited to a small number of factors that can be deliberately produced and controlled, the experimenter on children has moved out to study "natural" and social situations and has developed methods of quantifying and recording behavior as it occurs. Thus various types of material are made available or the "stage" is set without destroying the naturalness of the situation for the child. By taking samples for constant periods of time systematically or randomly distributed over a group of children for a number of days, observations of high reliability that can be subjected to statistical treatment are obtained. The use of one-way

vision screens, observation domes, stabilimeters, motion pictures and sound tracks, and categorized scales has increased the accuracy of observation and brought many phenomena previously inaccessible under study. The effects of various social atmospheres and controls and of experimentally modifying social techniques in children have been explored. Certain newer methods involve the use of time sampling, sociometric plotting, and projective techniques. Many methods first developed for studying young children are now being applied with success to the study of older children, adolescents, and adults.

THE EDUCATION OF YOUNG CHILDREN

Only recently has the teaching of young children been recognized as a profession. It was long assumed that anyone could take care of children and that a sentimental regard for children was more important than training. With the establishment of nursery schools for demonstration and research purposes, a need for skilled teachers of young children developed and a new profession, for which many thousands have now been trained, was created. Under the impact of the restricted environments for young children afforded by apartment living in modern cities, a need for schools for young children arose. The resulting demands for nursery schools was given added impetus by widespread employment of mothers during World War II. As a result of scientific studies, many institutions already in existence, such as day nurseries and custodial institutions, became aware of deficiencies in their programs for children and developed educational activities.

In contrast to the kindergarten movement which, arising a half century earlier without close contact with research, had quickly centered in private training schools that gave very narrow practical training, the nursery school from the beginning has maintained close contact with research organizations and universities. As a result, the personnel has been highly trained. Where formerly many came into the field from a liberal arts and psychology major background (and many had master's or doctor's degrees), now curricula have been established within colleges of education and teachers' colleges which give a thorough practical training for the teaching of young children, and which in certain states lead to a teacher's certificate as well as a bachelor's degree. Supervisors and head teachers usually have master's or doctor's degrees with majors in child psychology or development.

Except for a few systems and for demonstration nursery schools in high school home economics departments, which are fairly common, the nursery school has not yet become a part of public education. Some extension of kindergarten enrolment downward in age level, some integration of kindergarten and nursery education, and more use of research in kindergarten teaching have appeared. At present nursery school teaching is not a direct field of application for psychologists, as it becomes a professional field in itself. However, psychologists still play a large part in the training of nursery school workers, as with other teachers.

TRAINING PROFESSIONAL WORKERS WITH YOUNG CHILDREN

Many of the professions which impinge upon young children have recently become aware of the importance of the developmental and psychological approach to behavior. Among these are pediatrics, nursing, home economics, social work, and institution work. In each of these there is a strong movement to incorporate within the professional training program both practical experience with normal children and content courses which relate to the training of children. In some instances, such as nursing, nursery school experience is now an officially recommended part of training.

Not all these developments have taken place under psychological auspices. A substantial number of nursery schools have been developed within home economics departments and are staffed by personnel trained in that field. In some instances, however, psychologists direct these schools and find themselves members of a home economics staff, teaching courses in child development or child training in addition.

The opportunities for psychologists to participate in the training of professional workers with children are many. While in the main they involve college or university teaching as a career, nevertheless practical experience and close contact with children is becoming a part of these programs. Persons with psychological training are an essential part of a demonstration staff. Included are not only practical methods of teaching young children but also mental tests, personality studies, projective techniques, and other psychological techniques. Many centers for young children develop subsidiary services which demand various types of psychological skill.

CHILD DEVELOPMENT AND GENERAL EDUCATION

For many years courses in general psychology have

been valued as contributions to a liberal education. More recently, in view of the fact that ninety out of every hundred students in high school and college are later to be parents, courses in child care, family life, child psychology, and family relations, in addition to courses concerning marriage, have been introduced for the benefit of the general student. Sometimes these are spoken of as Preparental Education. Observation facilities in nursery schools are sometimes provided. In the main emphasis is upon practical and applied problems of a psychological nature. In colleges and universities courses of this type are usually given by psychologists; in high schools they are more frequently given by home economics teachers.

PARENT EDUCATION

As a member of the family the young child participates in and is affected by all that goes on within the family. The relations between child, teacher, and parents are intimate. It is a common experience for workers with young children to discover that a problem which appears to center in the child leads out into a whole complex of family relations and difficulties, and ultimately almost anywhere within the field of human behavior and relations. Thus what starts as a discipline problem in the child may turn out to involve an impending divorce; a question about a minor adjustment to sleep may end in a problem in sex education; and the temper tantrums of the three-year-old may lead to problems of personal and social deficiency in the mother. Because of the almost unlimited possibilities of applying psychological principles, the professional training of workers with young children should be broad and thorough and cover, not only child development, but also the interpretation of mental measurement, the understanding of clinical work, and practical experience with children and parents.

Because the parents of young children are greatly interested in the training of their children, workers in preschool education and child development are likely to be consulted on many problems and therefore have unusual opportunities for helping parents. Almost all schools for young children conduct parent education programs. These range from informal and individual conferences with parents to systematic courses with well developed programs of study, and even opportunities for the systematic observation and study of children.

In time a need arose for parent education as a form of community or adult education to forestall and prevent later difficulties. Thus programs of a more formal type, directed to parents whether or not their children were in school, came into existence. For example, institutes for child research sometimes carry forward a program of parent education conducted through study groups, lectures, and demonstrations. Much of the material presented consists either of psychological material simply presented or a direct application of psychological principles to child-rearing. Sometimes along with the more formal study group, consultation services are available, in which behavior and management problems are handled on an individual case basis.

In communities in which health and nutritional standards are low, the practical worker of necessity emphasizes improvement in physical status and nutrition. But as the health and nutritional needs of most children are reasonably well met, the interests of both parents and workers shift to adjustment problems, i.e., problems of training and education. Where children receive good care from pediatricians and health standards are high, parent education centers on psychological and mental hygiene problems.

Many organizations in the community, state, and nation which do not think of themselves as working formally in the area of parent education, nevertheless conduct substantial programs of adult education under other titles, and need professional skill and service. Thus a number of religious, fraternal, and charitable organizations conduct programs for young children (in which there may be nurseries or nursery schools) and offer educational services for parents.

A new profession has been created—that of the parent educator or expert in family relations. While not all who are in this field are psychologists, most have had substantial psychological training. Work in this area complements the community program of clinical facilities for diagnostic, remedial, and corrective purposes so essential for meeting problems in the individual. But even more important than the clinic is the preventive mental health program that brings to parents and the public the techniques, procedures, and attitudes that will prevent difficulties and insure for children wholesome and effective lives.

POPULAR WRITING AND RADIO

Within recent years, partly because of the interest of parents and partly because of society's increasing concern with children, new fields of application for knowledge about children have been developed. There is an increasing demand on the part of maga-

zines and newspapers for both occasional features and regular columns, for material relating to the care and training of children. A similar demand is arising in radio. In the past these outlets have been capitalized mainly by persons without much professional training or adequate backgrounds of experience with children. Often scientifically trained people hesitate to enter these fields because of a fear that their professional standing with their colleagues will suffer. These attitudes are disappearing. There is here real opportunity for service to the community and to children. Because parents and workers with children are reached in very large numbers, it is important that these areas be cultivated by persons of good scientific training in psychology, as well as substantial personal experience with an interest in children. They should be familiar with methods of securing information from scientific sources and be able to evaluate material critically. But the person who works in these areas of community education must also have the ability to write or speak well, and must have ingenuity and skill in capturing and retaining public interest without being grossly inaccurate or sensational.

CLINICAL WORK WITH YOUNG CHILDREN

In earlier generations very few children received clinical service. In psychological clinics, those examined were for the most part children above ten years of age who were having difficulties in school or in the community. Through infant welfare societies, preschool education, and parent education, the public has now been sensitized to the importance of behavior deviations in young children and to the needs for diagnostic and preventive measures as safeguards. Moreover, the techniques for examination and for prevention have greatly improved. Many more physical examinations are given young children, and more advice on health is given parents. Well-baby clinics are now quite common as are also systematic examinations prior to school entrance. In certain communities health projects follow individual children for a number of years. Children then come under clinical observation earlier than previously, and special clinical facilities for young children are needed. Often these develop in close association with preschool education or parent education programs.

Clinical work with young children offers an area of professional activity of importance. Some workers are concerned primarily with mental testing in nursery schools, in which work comparable to that done by the school psychologists at older age levels is done. Others find their way into combinations of psychometric and clinical work in health agencies, social agencies, or institutions that work primarily with young children, which sometimes combine educational and clinical facilities. Of special note are the agencies for handicapped children, some of which now maintain nursery schools for young children who are blind, deaf, or badly crippled. A basic requirement of many modern training programs for clinical workers with young children is substantial training experience in the use of the special tests and other diagnostic instruments devised for young children.

Need exists for psychological research on measuring devices for evaluating the development and progress of young children. Intelligence tests, for example, have proved very useful, but for assessing motor, language, and social development, and other phases of adjustment little is available of concrete, practical value. In some of these areas the extensive scientific literature is too often limited to the solution of particular scientific problems, rather than to the development of diagnostic and evaluative devices. An important task of one who guides or teaches children is a type of differential diagnosis, in which the child's performances are evaluated in a variety of ways, in order to locate sources of particular difficulty about which something can be done. Although such devices would be of value for normal children, they would be of very great value for handicapped, retarded, or blocked children, who because of inherited inadequacies, physical deficiencies, or a social or environmental handicap present unusual educational and training problems.

CONCLUSION

The child is not a creature apart like a laboratory animal, but a person with a father and mother, brothers and sisters, associates and friends, who lives in a community in which he is played upon by a great variety of forces and institutions that are part of the total social structure.

One group of services that the community needs in order to progress in the care of children is found in the clinical, remedial, and corrective agencies that are concerned primarily with individual problems and the extreme deviates from normal development. Because the demands of deviation and of illness and deficiency are so imperative, society tends to focus on these problems first. But from the long-time point of view, the problem of prevention by training parents and bringing children under professional

surveillance is of utmost importance. We should do both—correct defects and inadequacies after they occur, and build up the social devices which through training and educational programs will eliminate or reduce to the minimum the need for later remedial work. This involves raising the whole standard of community care. The public education of children is clearly a preventive program of the first magnitude, as it raises the literacy level of the entire population and makes everything else possible.

Public educational facilities for young children would likewise improve our society. But this may be far in the future. Meanwhile we meet our responsibilities to young children by nursery schools that meet special conditions, and by preparental and parental education programs that make information on the care of children available throughout the community. Building community awareness of the needs of children is the long-range attack that will bring greater facilities to young children in future years. As technical and professional workers, psychologists have much to give to young children. In the past they have given great service; in the future even greater possibilities are ahead.

READING REFERENCES

Barker, R. G.; J. S. Kounin; and H. F. Wright, *Child Behavior and Development.* New York: McGraw-Hill Book Company, Inc., 1943.

Carmichael, L. (ed.), *Manual of Child Psychology.* New York: John Wiley & Sons, Inc., 1946.

Child, I. L.; E. H. Potter; and E. M. Levine, "Children's Textbooks and Personality Development; An Exploration in the Social Psychology of Education." *Psychological Monographs,* 1946, **60**, No. 3.

Cole, L., and J. J. B. Morgan, *Psychology of Childhood and Adolescence.* New York: Rinehart & Company, Inc., 1947.

Gesell, A., et al., *The First Five Years of Life.* New York: Harper & Brothers, 1940.

Goodenough, F. L., *Developmental Psychology.* New York: Appleton-Century-Crofts, Inc., 1943.

Jersild, A. T., *Child Psychology* (3rd ed.). New York: Prentice-Hall, Inc., 1947.

National Society for the Study of Education, *Forty-sixth Yearbook: Part II. Early Childhood Education.* Chicago: University of Chicago Press, 1947.

66. INSTRUCTION IN ELEMENTARY AND SECONDARY SCHOOLS

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Teaching may be defined as the process by which one person guides the learning of another. The contributions of psychology to this task consist partly in the insights which the teacher may gain from general psychological principles and data, and partly in the findings of research on specific educational problems. Considerable effective psychological research has been conducted in school classrooms (Stroud, 1940). Investigations which have been carried on in school situations rather than in psychological laboratories, and generalizations relevant to teaching may be summarized under six main topics: (1) individual differences, (2) readiness to learn, (3) motivation, (4) general patterns of teaching, (5) audio-visual aids, and (6) transfer of training.

INDIVIDUAL DIFFERENCES

For approximately a century, instruction in American schools has been organized on the basis of grades or classes. A system of classification has grown up by which children supposedly equal in school attainments and in readiness for learning are taught together. The facts disclosed by the application of mental and educational tests to school children, however, throw doubt upon the assumption that homogeneous grouping of children for purposes of instruction is possible.

INTRA-INDIVIDUAL VARIABILITY

When any child is given a series of tests for various traits, e.g., general information, skill in handwriting,

speed of reaction, and problem-solving ability in mathematics, his scores ordinarily differ widely from one trait to another. In technical language, he shows considerable intra-individual variability (Kelley, 1927; Hull, 1928). No other individual is likely to show just the same combination of trait scores that he reveals (Thorndike, 1911). The hopelessness of organizing classes so that all the pupils in them will be equal in status in several different traits is apparent.

INTRACLASS VARIABILITY

There also is a wide range of abilities included within typical school classes. In terms of age units, the range of ability at the sixth-grade level is usually six to ten years in any one school subject, such as reading or arithmetic. Above this level, the differences are greater; below, they are smaller. In New York City, fourth-grade pupils have mental ages from 72 months, or first-grade level, to 190 months, or tenth-grade level (Cornell, 1937). A study of six hundred Pennsylvania high schools revealed that extreme variability, both in intelligence and in attainment in subjects studied, was a major characteristic of high school seniors (Learned and Wood, 1938).

EARLY REMEDIAL PROGRAMS

That the program of a typical school grade constitutes a sort of Procrustean bed, to which pupils of all degrees of ability are supposed to be fitted, was pointed out in 1868 by Superintendent W. T. Harris of St. Louis, forty years before Binet's development of a mental-age scale. A series of plans for correcting this situation appeared between 1870 and 1910. These proposals were generally identified by the names of the communities in which they were tried and included: (1) frequent reclassification of pupils, with acceleration of the gifted (St. Louis); (2) a double-track system of progress through the grades, one track to be traversed at conventional speed, the other at a faster speed (Cambridge); (3) increase of class size coupled with employment of assistant teachers to help the dull (Batavia); and (4) individual progress of pupils, with laboratory methods and promotion at whatever time a child completed the work of a grade (Pueblo).

ABILITY GROUPING

The most widely employed system of adaptations to individual differences is that known as ability grouping. This plan originated in the first decade and a half of the present century, following the development of mental and educational tests. Ability grouping, as practiced in many American schools, is largely based upon the use of these instruments of measurement. Typical ability grouping provides two or more parallel classes for each grade level, or for each subject in high school. Pupils are assigned to classes on the basis of measurements or ratings of ability to do the work expected. The bases for grouping most commonly reported by high schools are: (1) intelligence quotients determined by group tests, (2) scholarship marks in all subjects combined, (3) ratings for industry, and (4) ratings by teachers for academic ability (Billett, 1932). Several bases are commonly employed in both elementary and secondary schools.

Grouping is clearly affected by practices in the promotion of pupils from grade to grade. Cook (1941) showed that retarding the slow and accelerating the bright tends to increase the proportion of slow-learning pupils in each grade, to lower the average grade achievement, and to create difficult social and educational problems, by grouping together the slow, older children with the bright, younger ones. This procedure, he alleges, does not reduce the variability in groups that are to be taught together.

A certain amount of reduction in variability in specific achievement scores (about 20 per cent) is secured by grouping based upon intelligence test or general achievement test scores (Hollingshead, 1928). But this reduction in variability in subjects like arithmetic and reading may still leave eight-year-olds and fifteen-year-olds in the same class. Under such conditions, social and emotional differences are bound to be great.

It is impracticable to secure truly homogeneous classes, by any system of classification. In any class, however selected, the teacher is compelled to face the facts of individual differences. Ability grouping may reduce the range of abilities in academic subjects and improve academic achievement slightly (Otto, 1941; Northby, 1941). Yet it may be wiser, from the standpoint of major educational purposes, to group pupils on such bases as age, physical development, and social development, disregarding academic achievement (Cook, 1941).

INDIVIDUALIZED INSTRUCTION

Within a more or less heterogeneous class, instruction may be adapted to the differences known to exist by: (1) the formation of subgroups, as is often

done in primary reading instruction, (2) differentiated assignments, or (3) a thorough-going acceptance of individual instruction as a necessity. A few schools have given individual instruction an extensive trial. In Winnetka, Illinois, Superintendent Carleton Washburne after 1919 developed fixed units of work in subjects presumed to require primarily drill and memorization. These fixed units are completed by each child at his own rate. A plan originated in Dalton, Massachusetts, by Helen Parkhurst (1922) provides for the learner to work independently on "jobs," which are definite subdivisions of the curriculum. Each job normally is a month's work. Another unit-mastery plan which has been widely tried is that developed by H. C. Morrison (1926).

IMPLICATIONS FOR TEACHING

Teachers should expect the various members of any class to attain quite different levels of achievement, unless the goals are extremely limited. The data on the effect of instruction upon individual differences have been summarized (Cook, 1941) in the generalization that if goals are limited to achievement in memorizing and acquiring narrow skills, instruction may reduce individual differences; but if goals are set in terms that challenge development of each individual to his maximum, instruction increases individual differences (studies by Peterson and Barlow, 1928; Reed, 1931; Mattson, 1933; Anastasi, 1934).

READINESS TO LEARN

READINESS AS A PROBLEM

Effective teaching requires recognition of differences among pupils in readiness to learn whatever is to be taught. Such differences are marked, not only between individual pupils, but between various classes at the same grade level.

Interest in the problem of readiness to learn has steadily grown during the last two decades, largely because of psychological studies on infants and young children. Gesell and Thompson (1929) showed, for example, that intensive training in stair-climbing given one member of a pair of identical twins, aged approximately one year, resulted in only temporary superiority for the trained over the untrained twin.

In the school this problem becomes acute when a learning unit (say, developing mastery of the addition of decimals, or understanding the causes of the Mexican War) is to be assigned to a specific grade level in a course of study, when teachers face a class of pupils of widely differing capacities, experience, previous education, and attitudes, and in fact, whenever pupils themselves are confronted with learning problems that are largely new to them. Since curriculum-making, provision for heterogeneous classes, and the introduction of learners to new material are common problems in teaching, readiness is an everyday consideration in the work of schools. Two subjects, reading in the primary grades and high school algebra, illustrate the factors often taken into account in determining the degree of readiness for learning in particular school fields.

READING READINESS

How can a primary-grade teacher tell when a given child should first be given instruction in reading? One readily available help is a mental test. Morphett and Washburne in 1931 presented evidence to show that a mental age of six years and a half is optimum for the first definite work in reading. However, a number of other studies summarized by Harrison (1939) show the importance of several factors not revealed by an intelligence test. For example, attendance of a child in kindergarten, where reading is traditionally taboo, helps him in most cases to make more rapid progress in first grade than he would without kindergarten experience (Teegarden, 1933). This child is less likely to confuse and reverse letters in reading, presumably because of his practice in observation and perceptual discrimination of size and shape.

Other factors influencing success in early efforts to read include the development of a vocabulary, including the meanings of the particular words to be read, physical fitness, especially of the eyes, general emotional stability, availability to the child of attractive reading material, unavailability of an adult to read this material to him at his pleasure and belief by the child that he is capable of learning to read. Gates has shown (1939) that readiness for reading does not depend wholly on the characteristics of the child, however, but is influenced also by the methods of teaching to which he is exposed. A superior teacher may succeed in getting children below six years of mental age to read with considerable skill. Readiness is thus seen to involve complex relationships between the child, the teacher, the materials and methods employed, and other factors in the total learning situation.

READINESS FOR ALGEBRA

Studies of readiness for instruction in algebra emphasize some of the same problems as are faced in teaching reading. Thorndike in 1922 presented evidence to show that high school freshmen with a mental age below fifteen years and five months are unlikely to understand the symbolism, generalizations and proofs of the ordinary course in algebra. Later investigations call attention to the deficiencies shown by failing pupils in earlier preparation in mathematics, and to the possibilities of effective instruction in overcoming initial limitations (Schorling, 1934). For example, one means of building a confident attitude is to teach definite procedures by which the pupil can check the accuracy of his work.

As in the case of reading, readiness for algebra seems only partly dependent upon general intellectual maturity. A few years ago there was a tendency to assume that for any given unit of skill or knowledge or understanding there is one rather fixed stage in the development of a child when he is just ready to master it. It was supposed to be a serious blunder to present such a unit a little early or a little late. Today this view seems hardly tenable. Readiness is relative to a child's development, to be sure, but it is also relative to his teacher's skill and to general environmental factors.

MOTIVATION

An important aspect of teaching consists in motivating the learner. In classroom language, this commonly means influencing him to undertake to learn what the teacher wishes him to learn. In more psychological terms, the individual's interests, drives, purposes, and attitudes are involved. These words refer to the tendency of behavior to take and maintain a definite direction. To motivate a school child means, then, to bring about some change in the direction or vigor of his behavior.

From one point of view, the activities of an individual are considered as the resultant of many factors, or forces, which vary in intensity (Lewin, 1935). Some of these are thought of as within the individual's personality; others, as external to him. Both the forces within the individual and those playing upon him from without have often been oversimplified in psychological and educational discussions. That motivation is a complex process, with a total situation to be considered, has been emphasized by Young (1936, 1941).

PERTINENT RESEARCH FINDINGS

The doctrine of instincts, developed largely by James (1890) and McDougall (1908), assumed a number of native tendencies and impulses as basic causes of behavior, but few psychologists now regard this simplified account as useful. Two kinds of research have provided data for more fundamental and comprehensive concepts.

STUDIES OF ORGANIC CONDITIONS

Studies of animal responses to varied conditions of stimulation and deprivation, for example, electric shock and food deprivation, have emphasized the significance for activity of such organic conditions as emptiness of the stomach, the presence of endocrine secretions in the blood and fatigue. Physiological needs or organic drives are regarded by many psychologists as basic motivating factors in all behavior, social motives or purposes being built upon them by learning (Shaffer, 1936). Other psychologists treat social, ego, and integrative needs as parallel to physiological needs (Prescott, 1938). For teaching, in any case, it is more useful to note that nutrition, the condition of the eyes and ears, infection, lack of sleep, and other physiological factors affect the ability of the learner to reach his objectives than to try to trace his behavior to organic needs.

STUDIES OF HUMAN MOTIVES

Studies of human responses to various social stimuli have often sought to compare the effects upon learning of two or more general types of social stimulus, such as praise and blame, reward and punishment, knowledge and ignorance of results, and cooperation and competition. The results of such studies depend upon the total situation, and it is seldom safe to generalize that one factor is inherently more favorable to learning than another with which it is compared.

PRAISE VS. REPROOF

Hurlock (1924) selected four groups of elementary school children, all equally good in addition. For five successive days, they took tests in addition. Three of the groups worked in the same room. Of these, one group was publicly praised in front of the class each day, one was publicly reprimanded, and one was ignored. The fourth group, working in another room, was given no special stimulation. The children who were praised did best, those reproved

were second, those ignored third, and those (control group) in the separate room fourth. On the other hand, in experiments conducted under somewhat different conditions, Brenner (1934) found blame at times more effective than praise, and Schmidt (1940) concluded that the personality of the experimenter is more important than the verbal incentives that he uses.

REWARDS

Material rewards are seldom employed to stimulate learning in elementary or secondary schools, although symbolic awards—gold stars, the honor roll, etc.—often are. A few investigators have tried out monetary and other material rewards in school situations, usually with some success in terms of improvement in the limited skills studied (Leuba, 1933; Meier, 1935; Thorndike, 1933). Brasch (1941) and others have found symbolic awards effective. It should not be inferred from such studies that lasting and significant educational gains are to be secured by employing such motivating factors. The school child whose study is directed toward earning a prize for a good report card is likely to acquire narrow and perverted conceptions of education.

PUNISHMENT

The same limitation applies in interpreting studies which show punishment to be effective in motivating learning. Sarcasm, scolding, whipping, and detention are often used. Experimental data on these types of punishment are scanty, but considerable evidence from case studies of delinquents, school truants, and other problem children throws doubt upon the value of such motivation when broad educational objectives are considered.

KNOWLEDGE OF RESULTS

In several studies, accurate and detailed knowledge of one's own progress has been found stimulating to learning. For example, in an investigation utilizing 56 fourth-grade classes, Panlasigui and Knight (1930) found that drill in fundamental processes of arithmetic was more effective when individual and class progress charts were kept than when such charts were not used. Symonds and Chase (1929) compared the learning of English usage by sixth-grade children who were informed of their progress with that by pupils who had little definite information on their success. They concluded that one learning trial involving knowledge of results was as effective as five trials of an "unmotivated" character.

The children who were informed of their progress presumably cared whether they gained or lost. If they had not cared, it is quite possible that knowledge of results would not have mattered. On the other hand, knowledge of failure might have a discouraging and inhibiting effect upon learning.

INDIVIDUAL VS. GROUP COMPETITION

Maller (1929) gave tests for speed in adding to upper-grade pupils in ten schools and offered prizes for the best scores by individuals and classes. Periods of individual and group competition were alternated six times. In later periods, pupils worked for individual or class prizes, as they chose. Scores were significantly higher under individual competition. Brasch (1941) gave a series of similar tests to sixth-grade pupils in forty schools, with individual competition used consistently in twenty, and group competition in the remainder. The results favor group competition.

Maller concluded that competition for a personal prize is a more potent motive than cooperation. He suggests that the social order fosters the habit of competitiveness. Brasch's evidence indicates that class loyalty can become a powerful motive, if appealed to without a simultaneous or alternating appeal to individual rivalry. Neither of these studies deals with the give-and-take of a group working cooperatively upon a meaningful activity. It may be that maximum motivation would be found with rivalry eliminated in a situation requiring pupils to share work and responsibility.

IMPLICATIONS FOR TEACHING

Researches such as those reported above stress the play of outside forces upon the learner. They often disregard both his intellectual interpretation of the situation and his emotional set with reference to it. In a few cases, the assumption seems to be made that certain behavior is motivated, while other behavior is unmotivated. Such a conception places motivation entirely outside the individual, and regards him as essentially inert until set in motion by an activating force.

A need exists for investigations of motivation in the setting of an educational program wherein the primary objectives have shifted from the mastery of knowledge and skills to the development of emotionally mature, intelligent, socially sensitive persons. Schools with this sort of program have been described in several studies by Wrightstone (1935, 1936, 1938). One of the basic conceptions in these newer-type

schools is that of the learner as dynamic, active in advance of external stimulation, possessing purposes of his own. It should be revealing to study the process of redirecting these purposes in schools which start by assuming that the purposes exist rather than by ignoring them.

GENERAL PATTERNS OF TEACHING

General methods or patterns of instruction are hard to classify because of looseness of terminology and overlapping of various methods, by whatever names they are called. In a job analysis of teaching, Charters and Waples (1929) reported 1,001 activities of teachers, of which 122 were strictly instructional. Many recur in a number of the general methods which are commonly distinguished. For purposes of this discussion, the following brief list, selected from Monroe and Marks (1938), will serve: (1) recitation method, (2) laboratory method, (3) project and activity-unit methods, and (4) unit-mastery plan.

RECITATION METHOD

The recitation method generally includes assignment, study of textbook or other assigned materials, and recitation of what has been learned. The essence of this method is "hearing lessons," the chief activity of the teacher in traditional American one-room schools. Some form of this method has been compared with newer procedures in many experimental studies, generally with results unfavorable to the recitation method (Monroe and Marks, 1938). Learning is regarded, from the standpoint of the recitation method, as fundamentally consisting of rote memorization and habit-formation.

Learning by the recitation method may be enhanced in several ways. (1) Assignments may be made more definite (Beauchamp, 1923). The workbook is a device toward this end, but has not been experimentally evaluated (Umstattd, 1937). (2) The materials for study may be improved. The vocabulary burden of school textbooks has been extensively investigated (Curtis, 1938; Seegers, 1939, 1940). In general, textbooks would profit by simplification of their language. (3) Horn (1937) has suggested, on the basis of various lines of evidence, that materials may well be presented orally by the teacher, in both elementary and secondary schools, more often than is now the rule.

Since about 1910, attempts have been made to introduce teacher guidance into the study phase of the recitation procedure. The value of supervised study periods failed to receive conclusive demonstration in many of the early studies in this field (Brownell, 1925), perhaps because the functions of study supervision were not clearly enough defined. Later investigations report considerable gains in the skills required for work-type reading, when special instruction is provided. For example, ninth-grade pupils may be taught the skills required for becoming informed about a new book, using general reference books, interpreting graphs and tables, summarizing, and outlining (Leggitt, 1934).

Although formal recitations are frowned upon in current literature on methods (Hodgkins, 1937; Phillips, 1937), they persist in schoolroom practice. Wilson (1937) found that 45 per cent of the class time of 384 social studies teachers in New York State was spent in recitation. Questioning undoubtedly has value in promoting learning, especially in clarifying the understanding of words, when it is intelligently used. In practice, however, it often encourages superficial verbalism, the parroting of words without regard for meaning (Murra, 1941).

Socialized recitation is a name applied to a class period in which various pupils contribute reports on materials they have studied as individuals, and the class as a whole then discusses these contributions. Little if any experimentation appears to have been done upon this variation on the textbook recitation.

LABORATORY METHOD

The laboratory method covers many widely differing practices, from the carrying through of experiments in a science laboratory to the individualized study found in certain aspects of the Dalton and Winnetka plans. The common element seems to be the use of the classroom as a place for pupils to work at problems individually, with provision for material equipment, and, in many instances, library facilities. Teacher guidance in laboratory work is largely individualized. Sometimes the pupil works at specific assignments, uniform for all pupils. At other times pupils work on different problems, more or less of their own choosing. Laboratory procedures emphasize individual discovery as an aspect of learning.

Briggs (1938) summarized the evidence on laboratory techniques of teaching, with conclusions generally favorable to this instructional pattern. Horn (1937) uses the term collateral reading to designate the principal materials that should be available in a social science laboratory. The value of extensive

reading, as contrasted with mere textbook study, has been demonstrated repeatedly (Good, 1927; Rice, 1936). Textbooks and collateral reading may well be used together (Good, 1927).

In the natural sciences, more than a score of studies have been concerned with the relative merits of teacher demonstrations and pupil experimentation in the laboratory. Noll (1939) concludes that lecture demonstrations can save time and money, and may, therefore, be used for the more difficult and costly experiments. On the other hand, individual work has sufficient value to the pupil to justify its use for the simpler, shorter and less expensive experiments. Several studies suggest that a freer program than is customary, with pupil originality and initiative encouraged, can be developed in the science laboratory with good results (Bradbury, 1934; Davis, 1935; Singleton, 1935).

PROJECTS AND ACTIVITY UNITS

Project and activity unit methods have been employed chiefly in elementary schools. The older term is project (Kilpatrick, 1918; Collings, 1923). The contemporary term, activity unit, refers both to a curricular subdivision and to a teaching pattern. An activity unit in the elementary school curriculum commonly centers around a topic or problem extensive enough to occupy a class for much of its time over a period of perhaps a month. The unit cuts across ordinary subject boundaries, e.g., a study of transportation may include geography, history, civics, reading, spelling, language, arithmetic, music, art, and industrial arts.

As a teaching method, the unit typically involves several elements or steps: (1) stimulating interest in the unit; (2) determining, with the class, specific questions to be investigated and activities to be conducted; (3) organizing the class into committees; (4) the actual conduct of activities, both intellectual and motor; (5) division of labor among committees and individuals; (6) group and class discussions of work in progress; (7) mastery of skills and information needed in the activities; (8) bringing together results for the whole class, and (9) evaluation of results. The class is organized for learning in a democratic fashion. An activity-unit plan endeavors to relate learning to a social situation, to stress meanings, and to develop integrated, purposeful, self-initiated activity as a characteristic aspect of learning.

Collings (1923) applied a form of the project method in a four-year study in a rural school. Results were compared with those of more conventional recitation methods, to the advantage of the project method; but the enthusiasm of the teacher using the newer technique must be taken into account. Geyer (1936) summarized thirty-seven investigations concerned with activity versus nonactivity schools. In general, he found results favoring the activity-type program.

One of the most extensive studies on the activity-unit method is that by Wrightstone (1938), who did not, however, dissociate teaching procedures as such from curricular reorganization, changes in educational philosophy, and school management in general. He compared schools using new-type procedures with those following conventional ways. Three communities of each type were matched with three of the other. Individual pupils were also matched—for age, intelligence, and socio-economic status. He found the pupils in the new-type situations to be superior in social relationships, development of special aptitudes in language and art, critical thinking, use of out-of-school opportunities for learning, and physical vigor and mental health. They were slightly superior to the pupils in conventional schools in most areas of knowledge and skill, but below the latter in health information.

A six-year study on a large scale, comparing activity and nonactivity programs in elementary schools of New York City, is of special interest. Jersild and his associates in this investigation report (1941) that the children in the control group are slightly superior, although not to a statistically significant degree, in academic subject matter, but that the activity children are quite superior in leadership, experimentation, self-initiated enterprises, participation in discussions, arts and crafts, and such intellectual activities as explaining facts and applying generalizations. Morrison (1942) found the activity children in this experiment to excel in respect for school authority.

At the secondary school level, the Progressive Education Association made what is known as the Eight-Year Study, an evaluation of results obtained in thirty secondary schools that were freed from the necessity of preparing pupils to meet conventional college-entrance requirements. Much of the teaching in these schools appears to have followed an activity-unit pattern. The graduates of the thirty schools have proved generally superior in college to pupils paired with them as controls, who were prepared in conventional schools (Aikin, 1942).

UNIT-MASTERY PLAN

The unit-mastery plan developed chiefly by Morrison (1926) is adapted primarily to teaching in the natural and social sciences at the secondary school level. The plan assumes a curricular unit extended enough to require a considerable portion of the time for a given subject. Five steps are distinguished: (1) exploration of pupil background by pretest or other means, (2) presentation by the teacher of the new material, (3) assimilation, a prolonged period of study, (4) organization by pupils of what they have learned, and (5) recitation, both oral and written. The expected outcome is mastery of the unit. The unit-mastery plan suggests that learning is a process of intellectual organization and interpretation of material, not merely of rote memorizing.

Billett (1932) found that a form of this plan was reported in use by 9 per cent of those secondary schools which attempted to provide for individual differences. The same author more recently (1940) reviewed critically the psychological assumptions and implications of the unit-mastery plan. Monroe and Marks (1938) report that the plan has not received clear-cut experimental demonstration of its superiority over other patterns of instruction.

IMPLICATIONS FOR TEACHING

Patterns of instruction possess far more variety than this survey suggests. Success in teaching depends less upon the adoption of any formal method than upon the adaptability of the teacher. Good teaching by any method has definite objectives, provides for motivation, gives attention to individual differences, diagnoses and deals with difficulties in learning, and emphasizes meaning rather than verbal forms. The indecisive character of many investigations of general methods (Corey and Mook, 1942) means, not that all patterns are equally good, but that many variables influence their effectiveness. Any method must be evaluated in the light of psychological principles on the one hand and of educational purposes on the other.

AUDIOVISUAL AIDS

The dangers of verbalistic teaching carried on without proper regard for direct experience can be minimized by the use of modern inventions. Pictures, still and in movement, radio, recordings, and television reduce the limitations of time and space to a minimum.

MOTION PICTURES

Motion pictures give the learner clear-cut notions of the objects and actions in the visible world (Dale, 1946). Comparisons of the results of instructional procedures in which motion pictures were employed with the results of various other procedures favor the use of films rather than verbal materials only. Films increase the facts that pupils can command, both immediately and after prolonged intervals (Arnspiger, 1933; Gatto, 1933; Rulon, 1933), develop an understanding of relationships between historical events and forces (Knowlton and Tilton, 1929), and improve ability to make applications of general scientific principles (Rulon, 1933). In all such studies words have been used along with pictures, the teacher or sound film providing a verbal commentary.

RADIO AND RECORDINGS

In the use of radio broadcasts and recordings of talks, the advantage, if any, is in the fact that the words are those of a person who is better informed or more skilled in speaking than the teacher. Certain studies, for example, that made by Carpenter (1934), suggest that a competent radio teacher can secure satisfactory results in cooperation with relatively untrained classroom teachers.

The possibilities of radio for bringing the school child into close contact with events at a distance are receiving attention in many schools. Recordings of significant addresses and of eye-witness accounts of memorable events are now being produced, with a view to educational use. Television may eventually supplement radio and recordings. These uses of auditory aids to teaching have not been given experimental study, but seem likely to find a prominent place in the study of social problems, in developing attitudes such as tolerance and openmindedness, and in stimulating socially desirable activities.

IMPLICATIONS FOR TEACHING

Radio and recorded instruction seems to face certain limitations. One of these is the fact that a single presentation can hardly be adapted to the differences in background, intelligence, and interests known to exist between various classes and between individual pupils. A formal radio talk does not provide for discussion which might clarify ideas and facilitate their assimilation. The room teacher can overcome these difficulties to some degree following the conclusion of the talk. Perhaps more serious is the

charge that the elementary or secondary school pupil is compelled to be relatively passive during a formal talk delivered by radio or phonograph, and is too immature to profit by this modified lecture method. These criticisms need to be evaluated experimentally.

Motion pictures have some of the same limitations and possibilities as radio. The audience situation, which both of these aids involve, is not generally regarded as especially favorable to teaching, at least at the levels of childhood and early adolescence. Yet this situation possesses great possibilities for emotional stimulation. A carefully planned motion picture, with musical and verbal accompaniment, or a well managed radio discussion or dramatization, not only can bring to an individual experiences far more vivid and realistic than those which books can provide, but also can stir and move him deeply. Further research in these fields will doubtless deal with these outcomes of the use of audio-visual aids, as well as their contribution to intellectual development.

TRANSFER OF TRAINING

Since the pioneer studies by James (1890) and Thorndike and Woodworth (1901) showed the limited influence of one piece of learning upon another, there has occurred a gradual decline in the prestige of the concept of mental faculties, and of the corresponding doctrine of formal discipline. Hutchins (1936) and other advocates of classical education, however, continue to build educational practice upon these theories. Interest in the problem of transfer of training is far from dead.

PERTINENT RESEARCHES

A long series of studies, both in the psychological laboratory and in the classroom, has demonstrated that learning one subject or skill can, and generally does, affect learning of other subjects or skills. Most frequently the transfer results in improvement in the second activity (positive transfer); occasionally transfer operates in reverse (negative transfer). A large degree of transfer is rare (Sandiford, 1941).

A few studies of transfer in spelling in elementary and secondary schools show the type of conclusions reached. Barker (1927) found that children with six years of training in spelling have considerable success in spelling words that have not been studied, presumably at least in part as a result of transfer. Archer (1930) reported that specific transfer, both positive and negative, may occur from spelling words that include prefixes and suffixes to spelling the corresponding base words, or from the base words to their derivatives. The words studied and those to which transfer occurs, of course, have certain parts in common. The transfer might be accounted for by common elements or components (Thorndike and Woodworth, 1901).

Watson (1935) obtained evidence supporting the teaching of certain spelling rules to ninth- and tenth-grade pupils. Gates (1935), in a study covering grades two to eight, found that grouping words according to some common element, together with giving the pupils the appropriate rule, facilitated the learning of new words. A rule may be viewed as a common element in the learning situation and in other situations to which it applies, or as a product of the power to generalize, a power which is fundamental according to the theory of transfer by generalization (Judd, 1908; Hendrickson and Schroeder, 1941).

An investigation of another kind, broader in scope, is that made by Thorndike (1924, 1927) upon the relative values of different high school subjects. He used tests of reasoning or of selective and relational thinking, to measure about 13,500 pupils before and after a year of high school work, in which the various pupils studied a wide variety of combinations of subjects. He found that differences were so small and unreliable that no one subject or group of subjects could be regarded as giving superior general training.

In a certain sense, the experiments concerning the activity-unit method may be considered as studies in the transfer of training. Many of the tests and other measures used by Wrightstone, Jersild, and Morrison have been on behavior quite remote from the learning of the classroom. The evidence from these investigations provides considerable support for claims that newer type procedures, involving socially significant activities carried on in groups organized on a democratic basis, contribute significantly to the broader objectives of education. Pupils who attended the secondary schools included in the *Eight-Year Study* of the Progressive Education Association or the New York City elementary schools which conducted activity programs were in general more mature, intellectually, emotionally, and socially, than pupils who attended the control schools having conventional programs.

IMPLICATIONS FOR TEACHING

It is probably safe to say that the way that a subject is taught has more influence upon the amount of transfer than the nature of the subject itself. Among

suggestions to teachers interested in securing maximum transfer values are the following: (1) Identify clearly as many components as possible which are common both to the subject matter to be taught and to fields of possible transfer. These components may include information, skills, procedures, attitudes, and principles. (2) Help the learner to see the possibility and desirability of transfer. (3) Point out specific applications of what he learns, that is, points of identity or possible generalization between his learning and other fields. (4) Provide practice in making actual applications in as many situations as possible. (5) Emphasize discovery of meanings and relationships (McConnell, 1941; Thiele, 1939). (6) Encourage the learner to formulate verbal generalizations or principles as far as he can.

READING REFERENCES

Billett, R. O., *Fundamentals of Secondary-School Teaching*. Boston: Houghton Mifflin Company, 1940.

Gates, A. I., et al., *Educational Psychology* (3rd ed.). New York: The Macmillan Company, 1948.

Jersild, A. T., et al., *Child Development and the Curriculum*. New York: Teachers College, Columbia University, 1946.

Monroe, W. S. (ed.), *Encyclopedia of Educational Research*. New York: The Macmillan Company, 1941, "Educational Psychology"; "Elementary Education"; "Individual Differences"; "Methods of Teaching"; "Motivation"; "Radio Education"; "Secondary Education"; "Transfer of Training"; "Visual Education."

Stroud, J. S., "Experiments on Learning in School Situations." *Psychological Bulletin*, 1940, **37**, 777–807.

67. INSTRUCTION IN COLLEGE AND UNIVERSITY

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Selected major psychological problems that affect teaching and learning in college and university, listed roughly in order of appearance in the teaching-learning cycle, are as follows:

1. Choice of adequate class size
2. Organization of instruction according to ability grouping (homogeneous grouping)
3. Discovery and utilization of student interests, incentives, motivations, and other nonintelligence factors that contribute to achievement in college
4. Determination and utilization of the best classroom methods or instructional procedures, including lecture, recitation, project, problem, and independent study techniques
5. Selection and use of effective audio-visual aids, including the radio, film, and museum
6. Development in the student of desirable study habits, including attentiveness in class, note taking, reading, reviewing, and work attitudes
7. Identification of the inferior student and provisions for diagnostic and remedial programs for him
8. Discovery of the superior student and curricular adjustment to provide for the maximum development of his talents
9. Development and utilization of examination and testing procedures, including both essay and objective techniques, that vary according to the outcomes to be evaluated and which are not limited to the mere measurement of factual information
10. Development and use of a marking system that minimizes variations between teachers, departments, and schools, and which is based upon a consideration of all the factors involved
11. Evaluation of the effectiveness of the college teacher in terms of personal qualities, professional characteristics, teaching performance, and achievement of students

The first two of the above problems, class size and ability grouping, are not entirely under the

control of the college teacher. Decisions concerning them are made by presidents, deans, and department heads, and involve such considerations as enrollment, size of staff, and budget. The other problems involve direct consideration of the behavior of teachers or learners, or both, in an organized instructional situation.

Psychologists and educators, applying the principles and techniques of psychology, have contributed to the solution of these problems. Their recommendations and conclusions, which will be presented in this section, have been drawn from a variety of investigations.

TECHNIQUES OF INVESTIGATION

EXPERIMENTAL METHOD

Research on college teaching began about 1920. The experimental method has been employed in studying many of the conditions of classroom instruction mentioned above, and in particular applied to class size, ability grouping, motivation, methods of teaching, study procedures, remedial instruction, and methods of appraisal.

The experimental method, as used in investigations of college teaching, ordinarily involves the formation of two or more parallel groups or classes equated on the basis of such factors as intelligence and previous achievement. A variable factor, such as instructional method, is manipulated for the purpose of determining its effect on student achievement. For example, one class may be taught by the lecture method while an equivalent group is taught by the recitation procedure. By comparing the achievement of the two classes, conclusions are drawn as to the relative merits of the two methods of instruction.

USE OF TESTS

Standardized tests of various types have been used in most of the experimental studies to equate groups and to measure the effect of the experimental factor. These tests have also been employed in diagnosis of errors as a basis for remedial work, in identifying the superior student, in place of examinations, and in assigning marks.

OTHER RESEARCH TECHNIQUES

Interview and case methods have proved especially adaptable to the study of inferior and superior students. Rating scales and score cards of various types have been devised for evaluating the performance of both students and teachers. Questionnaire surveys have dealt with such topics as students' interests, preferences, and study habits. Correlation techniques have been applied to problems of motivation and success in college.

CLASS SIZE

Choice of teaching method and of learning or study procedures depends to a considerable extent on class size. In large classes (forty or fifty to several hundred students) the professor has little choice except to lecture, whereas in smaller groups it is possible to use discussion, individualized instruction, and socialized procedures, such as class projects, group research, and committee reports.

Hudelson and Von Borgersrode jointly have directed extensive experimental studies of class size at the University of Minnesota. They concluded, from sixty-seven paired-class experiments and other pertinent data, that under typical teaching conditions measurable achievement is not adversely affected by reasonably large classes (Hudelson, 1928). Such experiments have been criticized because of emphasis on the factual information in the tests used to measure achievement. It may be that factual material can be learned as readily in large classes, or even outside of class, as in small groups. However, both teachers and students favor class sizes to which they are accustomed, and they rationalize their opinions despite contrary objective evidence. Many teachers report that the stimulation of teaching large classes compensates for the extra preparation and the work required.

The proponents of small classes claim that from closer contacts between professor and students come desirable results in terms of interests, attitudes, initiative, socialization, and individualization. These are outcomes difficult to measure, and the advocates of small classes are on the defensive until they devise suitable measuring instruments to evaluate their claims objectively.

ABILITY GROUPING AND ACCELERATION

Ability grouping is the sectioning of students of a given course into two or more classes, according to ability to learn or achievement in the subject, so that the membership of each class is more alike than would be true if all were together in one group. One of the major difficulties is to discover valid criteria for sectioning. When the usual standardized achievement and intelligence tests are employed, the claim for homogeneity is frequently inaccurate

because of differences in motivation, ambition, perseverance, industry, work habits, and past experience that are unmeasured. In actual practice certain of the foregoing factors are indirectly measured by previous marks in the same subject field.

The more frequently mentioned advantages of ability grouping are: (1) provision for each student of a reasonable standard of work, in keeping with his abilities; (2) adjustment of materials and methods to the needs of the group; and (3) better class morale, since each student works with others of similar capacities and attainments. The two most common arguments against ability grouping are that the practice is undemocratic and that professors and students will find the slow sections a discouraging environment. An answer to the first objection is that genuine democracy means a full opportunity to every learner for complete development of his capacities. This statement also answers the second objection insofar as sectioning provides a favorable, encouraging environment for learning at the mental level of the student.

To summarize briefly the available experiments, sectioning according to ability at the college level is worth while (Ullrich, 1926), provided adequate bases for grouping are employed and appropriate group adaptations of standards, materials, and methods are made. In some instances the time allotment for the abler group has been shortened (Tharp, 1927; Brown, 1930), keeping the content the same for the parallel sections, rather than using the same length of time for all sections with an enriched program for the abler group (see Cole, 1940, for a list of experiments involving enrichment or reduction of the content of the course). Any so-called homogeneous section, however, is made up of individuals, no two of whom are exactly alike, which implies that ability grouping provides only in part for individual differences in capacity to benefit from instruction.

A study of educational acceleration at Ohio State University covers the years 1941–46. The primary purpose has been to show what was happening to the rate of educational progress of students before the war, in the war period, and since; during the war, many moved faster, but the tendency is now to return to the conventional rate. In the second place, relations have been studied of different rates of progress to educational mortality, academic success, participation in student life, health, and after-graduation success. Many students can move at faster than the usual pace without handicap to academic work and participation in student life, and it is probable that such faster progress reduces educational mortality and increases likelihood of success in an adult career. In the third place, certain experiments have been attempted regarding means by which a student's rate of progress could be better adjusted to his ability and needs; guided acceleration not only results in satisfactory academic work and participation in activities, but also reduces academic mortality (Pressey, 1946).

MOTIVATION

Studies of the interests of college students in psychology have dealt with such topics as: representative items taught in elementary psychology (Hartmann, 1933), affective tone of different topics in educational psychology (Hartmann and Hamm, 1934), work interests of superior and inferior students of general psychology (Dimmick, 1936), and preferences for different aspects of class lectures in general psychology—demonstrations, textbook material, and nontextbook material (Israeli, 1933). Such investigations indicate that, in addition to intelligence, there are certain topical interests, work interests, and attitudes that are contributory to success in specific college courses.

Interest studies also have considered the correlation between degree of interest in a college course and the mark received (Fryer, 1927; Meenes, 1935; Kulp, 1935), and the effect of teacher popularity upon interest in school subjects (Corey and Berry, 1938). Investigations of incentives are concerned with the influence upon achievement of knowledge of progress (Ross, 1933), psychological effects of doing a monotonous task (Burton, 1943), level of aspiration for a test to be taken (Festinger, 1942), effect of shock on the acquisition and retention of motor and verbal habits (Bernard, 1942), exemption from examinations (Remmers, 1933), expectation of fraternity initiation (Lehman, 1935), effect of scholarship appointments on marks (Crawford, 1926), and vocational ambitions (Zorbaugh and Kuder, 1937; Williamson, 1937).

The results secured from most of these investigations of incentives and interests indicate that no single best method of motivation exists. The interests and attitudes with which a student comes to college can be modified (Fryer, 1931) in desirable directions by the experienced teacher. Therefore, considerable progress toward stimulation of the interests of students can be made through appropriate modification of instructional methods, teach-

ing materials, and the physical conditions of classroom and campus. Instructional techniques, however, should not follow blindly the momentary interests of immature students. Content of relatively great social value, organized and presented according to psychologically sound principles of teaching and learning, will motivate the work of students who have a real purpose in coming to college. Other topics of the present section will indicate the manner in which teaching methods, study procedures, diagnostic and remedial work, and variations in testing technique may serve as effective incentives to the learner.

INSTRUCTIONAL METHODS

There is no generally accepted or experimentally demonstrated master method of teaching in the college classroom. In spite of much criticism, the lecture method has proved substantially as effective as other procedures for large classes. Experiments, conducted for the most part in psychology and in science classes, indicate that either lectures-with-recitations or lectures alone have certain advantages over the small-group recitation method (Remmers, 1933); that three lecture-recitation periods are as effective as two such periods plus individual conferences (Hartmann, 1935); that a combination of lecture and socialized recitation produces as good results as a group study procedure (Barnard, 1936); that delayed recall from reading is as satisfactory as from lectures (Corey, 1935); that three class periods plus two laboratory periods are as effective as five lecture sessions (Tyler, 1932); that individual demonstration in elementary college biology has certain advantages over the laboratory method (Kahn, 1942); and that the lecture-demonstration method in chemistry is effective as compared with individual laboratory work (Degering and Remmers, 1939). In the interpretation of results concerning the lecture method, the earlier discussion of this section on class size should be considered.

Other investigations of classroom procedures suggest that the project method is as satisfactory as ordinary instructional "routine" (Shirley and Hevner, 1930); that teachers in summer workshops with emphasis on the project type of learning subsequently modify their instructional procedure markedly (Heaton, 1940); that the Morrisonian unit plan is particularly successful in social studies courses stressing problem-solving or modification of behavior (Michener, 1940); that two class meetings per week are as good as three (Hartmann, 1931); that independent study produces as satisfactory results as class attendance when the time factor is equated (Ryan, 1932); that individualized instruction in English composition has certain advantages over group instruction (Karp, 1942); and that the class period spent in study is as effective as discussions, reviews, and reports (Weisenfluh, 1935).

The results of experimental studies indicate that lectures, demonstrations, recitations, projects, problems, and independent study have been effective. The reaction of many students is that college teachers should employ a variety of instructional procedures. Students enjoy and profit from methods that stress intelligent classroom participation (Zeleny, 1940; Thelen, 1944), but the lecture is rated best as a ground-covering technique (Luderman, 1942). For class discussion to be effective, students should present opinions and evidence already at hand, locate specific problems for consideration, and utilize opportunities for interpretation and organization of newly acquired information (Miller, 1941). In dealing with social problems, actual experiences in the form of field trips and conferences are important in modification of attitudes and in problem-solving (Billings, 1942; Smith, 1943).

As a rule, any innovation in classroom procedure has proved equal or superior to a conventional plan with which it has been compared. Possibly a change to a new method has a stimulating effect on both teacher and students, which may account for the relative superiority often found for the new method under trial. Such conclusions suggest that the choice of classroom method depends on at least three variables—the teacher, the students, and the subject matter. In particular, the dynamic personality and enthusiasm of a skilled teacher may secure superior results through use of a method that may lead to failure in the hands of a less talented instructor. It seems reasonable to conclude that any instructional technique is legitimate that stimulates the interest and intellectual activity of the learner in the direction of desirable educational outcomes. Certainly the complexity of the teaching-learning process is such that attempts to establish the relative merit of a "general method" of teaching are likely to prove inconclusive (Corey, 1942).

AUDIO-VISUAL AIDS

The commonly used term "audio-visual" indicates that frequently the two approaches merge into a single teaching device. For example, records are used with slidefilms to make possible the sound

slidefilm; the sound motion picture provides pictures and sound track on the same piece of film; and television, though still undeveloped as an instructional medium, adds a visual aspect to radio (Stenius, 1945).

Although the war years saw a tremendous increase in the interest of educators in teaching aids, especially visual media and frequency modulation (FM) broadcasting, the war and restricted manufacture of equipment for civilian use prevented the development of the field and wider use of audio-visual materials in the schools. Likewise, the research in this field has reflected the status of the program in the schools, particularly in elementary and secondary schools, without a continuous pattern of investigation. However, the development of FM broadcasting and the planned increase in the number of stations owned and operated by educational agencies are promising. Even though the schools have objectives different from those of commercial radio, educators may well study how the networks have attempted to judge the nature of the different listening audiences and the effectiveness of programs (Stenius, 1945).

Museum service as a phase of the instructional-aids program may develop to a considerable degree in postwar years. The armed forces made much use of models, mock-ups, dioramas, and specimens, although, in most instances, visual-education departments have not concerned themselves with such materials, but rather with projected visual aids—motion pictures, slides, and slidefilms. In some cities flat pictures, models, and realia are furnished to the teacher by the school system's museum department; and in many other cities such materials are available to the teacher through museums independent of the school system (Stenius, 1945).

In planning a program of visual and auditory education pertaining to classroom activities, whether elementary, secondary, or higher, it must be remembered that the greatest part of a student's visual and radio "education" comes from his out-of-school seeing and listening, particularly through the movies and radio as major educational forces, either good or bad. With respect to radio, although the research of recent years has been criticized in terms of the quality of some of the studies, the insignificance of some of the findings, and the lack of coordination between investigators and between investigations, four generalizations seem reasonable: (1) there are on the air many broadcasts highly enjoyable and educationally valuable to students and teachers alike; (2) comparatively few teachers use this curriculum resource made available through technological progress; (3) radio broadcasts, like motion pictures, books, magazines, and other teaching aids, can be used effectively in the achievement of educational objectives; and (4) the possibilities of radio—as a medium of communication, as an agency of education, and as a form of art and literature—have only been touched in the schools (Reid and Day, 1942).

Many of the investigations of the merits of audio-visual aids have been inconclusive. One explanation is that instructional aids are tools to be used by the teacher, which means that the teacher himself becomes a large conditioning factor, and should be studied as a variable factor in any appraisal of instructional outcomes. Another problem for future study is to determine the specific purpose best served by each type of teaching aid and the most effective use of each instructional device.

STUDY PROCEDURES

Instructors usually expect college students to spend approximately two hours in preparation for each hour in class; students actually spend somewhat less than the expected time. Typical study habits of good students involve: (1) favorable study environment, (2) attentive behavior in class, (3) systematic note-taking, (4) skillful reading techniques, (5) systematic reviewing, (6) favorable attitudes toward work, and (7) diversified application of materials learned (Cole, 1940). While these factors apply especially to the mental skills of the academic course, it should be noted that in the motor skills of dart-throwing and basketball-shooting "mental practice" proved almost as effective as actual practice (Vandell, 1943). The college teacher is obligated to aid students in the development of effective study and learning procedures; an example is a study-habit questionnaire, as used in the first semester of a German class (Wittenborn and Larsen, 1944). Especially is this true in the case of freshmen, whose problems of adjustment usually are numerous in moving from the secondary school to the college.

The study procedures of students are affected by the character of the tests and examinations devised by the professors (Class, 1935; Douglass and Tallmadge, 1934; Meyer, 1935). In preparation for objective tests, attention is focused upon memorizing details and the exact wording of passages. Reviewing for essay tests involves: formulation of personal opinion on the material covered, stress on underlying relationships, attempts to draw conclusions,

preparation of summaries, and answering of sample questions, but little attention is paid to memorizing details. Meyer (1936) reports that the comprehensive character of the preparation employed in anticipation of essay examinations results in superior performance on any type of test, and suggests for economical learning that students should study with the essay-examination mind set.

Very few learning-curve studies have been conducted to show progressive mastery of the different college subjects, although such learning curves are available at the elementary school level, particularly for the fundamental tool skills. On the other hand, many investigations of forgetting have been made at the college level. While the earlier experiments reveal a distressing amount of forgetting with respect to factual materials, improved techniques of measurement have revealed more retention of general principles and interpretations than at first was indicated (Cole, 1940). Certainly these outcomes should be stressed in teaching and learning, even though details and factual data must be learned as a basis for the development of generalizations.

THE INFERIOR AND THE SUPERIOR STUDENT: ADJUSTMENT PROCEDURES

Certain techniques can be utilized in the classroom to promote adjustment to the individual needs of the inferior and the superior student.

THE INFERIOR STUDENT

The more common symptoms of the inferior student are: (1) unsatisfactory physical condition; (2) ineffective methods of work in reading, note-taking, and reviewing; (3) social difficulties, including home conditions, outside work, and social relations; (4) lack of or wrong vocational choice; and (5) emotional difficulties, including work and personality maladjustment (Cole, 1940). Good remedial programs for the treatment of failing and inferior students include carefully directed and supervised study, analysis of errors and diagnosis of difficulties, remedial instruction and practice, correction of physical handicaps, and adjustment of emotional difficulties.

The results of remedial programs of instruction reveal relatively large gains in such fields as reading, arithmetic, and English usage. It is reasonable to conclude that students weak in the fundamental tools of learning should not be admitted to college until certain standards of competence have been reached. If the student is admitted to college lacking ability to read the textbooks with comprehension, or to write simple English, or to calculate accurately the fundamental operations in arithmetic, higher education cannot begin until diagnostic and remedial procedures have been initiated and completed.

THE SUPERIOR STUDENT

The superior student differs characteristically in certain respects, other than level of intelligence, from the average student. He has relatively efficient work and study habits, comes from a favorable home environment, and may find less mature companions and "campus life" boring, although he is not antisocial (Cole, 1940). The discovery of talented students usually is left to the teaching staff, although it is highly desirable that psychological tests of general intelligence and of special aptitude, as well as tests of scholastic aptitude, be employed in locating the gifted freshman. It is even better when such information is available as a part of the high school record and is sent ahead of the student to the college of his choice.

The superior student needs an amount and type of work that will stimulate maximum development of his capacities. Among the plans in use for meeting the needs of such students are: (1) superior freshmen are allowed to secure credit for, or at least exemption from, certain courses by passing an appropriate examination; (2) separate sections, or courses, are provided; (3) individualized instruction is provided; (4) independent study is permitted and encouraged; (5) graduation with honors is encouraged for students doing reading and study in excess of the usual requirements; and (6) graduation from college in less than the traditional four years is permitted.

EXAMINATIONS AND MARKING

EXAMINATIONS

Students vary their methods of preparation according to whether essay questions or objective (short answer) test items are expected. Both types of appraisal have their own peculiar merits and limitations, and probably neither should be used to the exclusion of the other, although essay examinations usually are less reliable than well constructed objective tests. The type of examination to be used should be determined by the nature of the outcomes to be measured. Occasionally the oral examination is used, especially at the graduate level and in connection with senior readings or reading for honors. Desir-

able trends in measurement are seen in the effort to go beyond mere testing of factual information to evaluation of ability to think, interests and purposes, attitudes, study skills and work habits, social adjustment, creativeness, functional information, and the student's social philosophy (Raths, 1936).

A number of investigators report that weekly tests are preferable to monthly tests as a stimulus to learning, with a favorable effect on performance. Tests may serve as useful teaching and study aids, if the errors are noted and discussed by the students and teacher. Examinations are not of themselves an academic evil or a detriment to genuine learning; they become such only when poorly constructed or improperly used.

MARKS

Arguments against marks are that they become of themselves the goals of the learner, overemphasize subject matter, are inaccurate, and reduce education to arithmetical units. The customary counter-arguments are that marks are necessary to provide an objective record of the students' attainments for use by faculty members, employers, and by the students themselves; that students desire this form of evaluation; and that such records reveal to the learner his current status or rate of improvement (Cole, 1940). When all of the evidence is analyzed, there appears to be no satisfactory substitute for marks that are carefully assigned and properly used.

Current theory and practice point toward a marking system with a few divisions, such as *A, B, C, D, F,* rather than the older percentage system. The normal curve is not a wholly satisfactory basis for assigning marks at the college level, since the student population has undergone a process of selection in passing through the high school, on entering college, and in moving progressively through the years and courses of the higher institution.

The distribution of marks varies greatly from teacher to teacher, department to department, school to school, and even from year to year. Two plans have been suggested to compensate for the unreliability of marks. One plan requires the teacher merely to rank the students in his class; the marks are assigned in a central office after consideration of the learner's mental level and academic record (Nicol, 1932). The second plan involves a correction of the teacher's marks according to the way in which the individual instructor deviates from the average of those who assign marks to the same students (Reeves and Russell, 1933).

APPRAISAL OF TEACHING EFFICIENCY

If it is desirable to evaluate the progress made by the learner, it is equally essential to appraise the efficiency of the teacher. Difficulties in measuring the effectiveness of instruction include the complex nature of teaching and learning, limitations of the rating scales and tests available, and the generally unfavorable attitude of college teachers toward any objective plan of appraising their teaching. In few cases are scores on intelligence, aptitude, achievement, and personality tests available for college teachers. Usually the graduate and undergraduate records are examined at the time of employment, although such records are only indirectly predictive measures of teaching success.

The chief methods available for evaluation of the college instructor include: (1) proficiency tests administered to the teacher, (2) rating of the instructor by a department head or dean, (3) measurement of the progress of the students, and (4) consideration of such professional activities as advanced study, travel, research, and writing. The last-mentioned professional activities are, at best, only indirect indications of instructional competence. Proficiency tests are seldom used, and degrees or recommendations are accepted as an indication of the teacher's preparation. The more commonly used captions in rating scales for teachers are concerned with personal qualities, professional characteristics, teaching performance, and student growth. Such instruments are helpful, if properly used, in that they provide a convenient check list of qualities and activities considered essential to good teaching. In any evaluation of teaching efficiency through measurement of student progress all factors (intelligence of students, etc.) save teaching efficiency must be held constant, and the achievement tests used for the appraisal must be adequate.

MAJOR ISSUES AND NEEDED RESEARCH

Few final conclusions or fixed generalizations can be formulated concerning the problems discussed in this section. Additional experiments and investigations will be necessary before definite answers can be given to these problems. Most of the studies thus far have been conducted in the areas of psychology and education. Similar experimentation and appraisal should become campus-wide in evaluating innovations in curriculum and method. Too frequently, such "experimental" plans have been adopted without critical appraisal before or after inauguration.

Among the trends in higher education that should be evaluated more completely are: (1) adjustment of the program to the individual student, including honors courses, independent study, and tutorial instruction; (2) comprehensive examinations; (3) achievement examinations as a substitute for "time spent" in granting academic credit or college degrees, including deviation from the four-year unit for college graduation; (4) organization of divisions, such as biological sciences and social sciences, for the purpose of stressing relationships between departments of instruction; and (5) programs of general education. Comprehensive appraisal studies already have been worked out, as at the University of Minnesota (Eckert, 1943), in the Eight-Year Study of the Relation of School and College (Chamberlin, 1942), by the Commission on Teacher Education (1946) of the American Council on Education (Troyer and Pace, 1944), and in the Carnegie Pennsylvania study (Learned and Wood, 1938).

A more detailed illustration of current issues may be taken from the field of teacher education to indicate the challenge presented to educational psychology, social psychology, and education. The problems to be solved in attracting young people to enter the profession of teaching and in stimulating teachers in service involve improvement in the following aspects of teacher education: (1) recruitment and selection of competent students for teacher training programs, with the rewards of teaching brought to the attention of able candidates and financial resources made available for students who cannot finance their own education; (2) an adequate program of educational and vocational guidance as an aid in the recruitment and selection of candidates for teaching, with first-hand contacts between high school seniors and school situations and school people; (3) greater unity within the various divisions of higher institutions training teachers; (4) an improved program of general education; (5) an increased understanding of child growth and development; (6) broad social understanding through close contacts with communities and their problems; (7) fruitful experiences with children, schools, and communities prior to undertaking an actual program of student teaching; (8) functional student personnel programs; (9) effective student participation in the planning of their own educational experiences; (10) functional evaluation and appraisal of progress toward desirable educational goals; (11) in-service programs for stimulation and growth of teachers; (12) cooperation between higher institutions in the work of teacher education; and (13) cooperation between elementary and secondary schools on the one hand and the colleges on the other hand in sharing of resources (Commission on Teacher Education, 1946).

As suggested earlier in this chapter, reasonably satisfactory techniques of research for making such studies have been developed and are generally available in the psychological and educational literature.

READING REFERENCES

American Council on Education, Commission on Teacher Education, *The Improvement of Teacher Education*. Washington, D.C.: The Council, 1946.

Cole, L., *The Background for College Teaching*. New York: Rinehart & Company, Inc., 1940.

National Society for the Study of Education, G. M. Whipple (ed.), *Thirty-eighth Yearbook: Part I. General Education in the American College*. Bloomington, Ill.: Public School Publishing Company, 1939.

———, Nelson B. Henry (ed.), *Forty-first Yearbook: Part II. The Psychology of Learning*. Bloomington, Ill.: Public School Publishing Company, 1942.

National Society of College Teachers of Education, Fowler D. Brooks (ed.), *Twenty-seventh Yearbook: Study of College Instruction*. Chicago: University of Chicago Press, 1939.

68. PREDICTING SUCCESS IN COLLEGE AND UNIVERSITY

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The Office of Admissions in the college or university is an administrative division responsible for the recruitment, selection, and induction of new students. The scope of the admissions program varies from institution to institution according to the size, purpose, educational philosophy, financial condition, and legal status of the particular institution, its administration, its faculty, and its clientele.

THE ADMISSIONS PROGRAM

In many large, public, tax-supported universities the activities of the admissions office are frequently limited to (1) receiving applications from prospective students, (2) checking their secondary school records to assure that they meet the minimum educational prerequisites set by the faculty, and (3) notifying applicants of their acceptance or rejection, usually with a statement of further precollegiate study necessary to meet the requirements for admission if applicable.

In many cases the admissions officer may also serve as a promotion and recruiting agent for the institution and must sell the institution to at least enough applicants to fill the quota for the freshman class. This is especially true in institutions dependent on tuition and fees for their financial solvency. In both of the foregoing cases there is little likelihood of much psychological work entering into the admissions program except in the preparation of advertising and promotional materials including, in some cases, guidance leaflets and career bulletins.

There are, however, a considerable number of colleges and universities in which the admissions program includes, not only the functions stated above but also prematriculation educational and vocational counseling, orientation activities, and follow-up programs to assure that students admitted are satisfactorily performing their collegiate educational responsibilities. In such institutions the admissions office performs functions more commonly included in the Department of Student Personnel which are largely psychological in nature.

In some institutions in which (1) the number of applicants exceeds the number which can be accommodated as students, or (2) the institutional philosophy holds that higher education should be restricted to those individuals best qualified to profit by it, or (3) there is classification for differential instruction within the institutional program, the admissions officer must conduct a program of selective admissions, that is, he must select from all applicants only those most likely to live up to the demands of the institution. In such cases the admissions officer is likely to be a psychologist or to make use of psychological techniques and psychologically trained personnel.

The techniques and practices of in-college student personnel work are discussed elsewhere in this chapter. This section will be devoted to practices in other phases of the admissions program with emphasis on selective admissions.

SELECTIVE ADMISSION

Selective admissions implies that from all applicants for admission to any particular college, some are admitted and some are rejected. Those admitted presumably meet certain requirements or possess certain characteristics not met or possessed by those rejected. Since the chief concern of college faculties and administrative officials is to have students who can successfully complete college, the basis for selective admissions is primarily aptitude for college work. The task of the admissions officer is therefore to develop and use devices and procedures for identification of those applicants who will be most likely to meet the academic requirements of the institution. He must develop procedures for prediction of the probable degree of success each applicant may be

expected to achieve and select for admission those applicants most likely to succeed.

THE CRITERIA OF SUCCESS IN COLLEGE

The basic criteria of success in college are ordinarily set by the faculty and administration in the form of certain formal rules and regulations with which the student must comply. Operationally the most important criterion is that pertaining to academic competence necessary for continuation in, or graduation from, the college. It is variously stated in different institutions: sometimes as an average grade in all courses such as 70 per cent for continuation and 75 per cent for graduation; sometimes as a ratio between credit hours of marks of *C* or better and *D* or below, sometimes in terms of the absolute number of courses or credits passed or failed, or others. Institutional idiosyncracies of method and minimums are unimportant, but it is important that the student meet the criterion of his own school else he will no longer be a student there.

Other criteria frequently established include rules that the student keep out of trouble, i.e., he must not violate rules of conduct governing such activities as cheating in examinations, observation of the moral code, and even in some instances he must not engage in community activities deemed inappropriate for a college student.

The problem of selective admissions is then one primarily of the prediction of academic success in which the criterion of success is some function of teachers' marks and the predictors are tests and recorded information about each applicant.

PREDICTIVE TECHNIQUE

In general the procedure for determination of the predictors of academic success and their relative weights in any particular institution is empirical. All possible information which might be predictive is obtained for all individual members of one or more entering freshman classes. It is desirable that the trial class be completely representative of the applicant population and not attenuated by selection on any of the experimental predictor variables. The information gathered is filed and as the class progresses through the institutional routine, criterion scores are added to the individual records. Correlations among predictors and criteria and a regression equation on the basis thereof are computed. The regression weights are the optimal weights for the combination of the predictor variables to forecast the criterion of academic success.

It will be noted that these weights are empirically determined from an actual class or classes of applicants and students. The admissions officer must then assume that since these were the optimal weights actually found for a sample class they are probably reasonably adequate for making predictions for subsequent classes provided that no major changes occur in the subsequent applicant populations, the program of the institution or the standards of academic success. To assure that such changes do not occur unbeknown to the admissions officer he will ordinarily conduct confirmatory studies on each entering class and apply the results to the prediction program for potential members of the next succeeding class. Follow-up validation studies should be routinely conducted for every class.

PREDICTORS OF ACADEMIC SUCCESS

A wide variety of potential predictors have been used and subjected to statistical analysis to determine their efficacy for academic prognosis. Which are best and the extent to which each is useful in terms of predictive efficiency varies from college to college and even from course to course within the same college. In general, however, the following summary of findings seem to be warranted from results reported.

SECONDARY SCHOOL RECORD

For purposes of selective admissions, the precollegiate educational record is usually evaluated in terms of an over-all average of secondary school teachers' marks. The correlation between average secondary school marks and average college marks at the close of the first year of college varies widely depending on the particular college and the particular secondary school. Segal (1934) and Wagner (1934) independently report coefficients ranging from +.25 to +.68 and averages of about +.55. The most typical relationship is probably between +.50 and +.60. Correlations between high school marks and marks in college at the end of the second, third, and fourth years are somewhat lower. An appropriate statistical study of the marks of individual schools resulting in a procedure for weighting the marks from different schools increases the relationship somewhat.

That good secondary school marks are not alone indicative of success in college may be due to several limitations in the secondary school marks: (1) they may be the result of only mediocre mental

ability coupled with good study habits and much time devoted to school work, (2) they may be the result of high intelligence but required and received neither efficiency, much time or work, (3) they may be the result of high mental ability, efficient study habits and diligence. In the first two instances the good secondary school student may have difficulty succeeding in college. If the trouble be mediocre mental ability it may prove impossible to devote sufficient time to master college work. If the trouble be only inefficiency and lack of diligence it is usually possible to correct the situation by proper remedial retraining. In the third case failures in college are rare, occurring only as a result of the operation of extraneous conditions such as emotional maladjustment or loss of interest, and can be overcome by appropriate clinical and advisory services.

SECONDARY SCHOOL COURSES

Studies have failed to reveal any significant relationship between particular secondary school curricula followed and success in college. There seems to be little or no evidence to support the traditional college policy of requiring specific high school subjects or fixed numbers of credits in such subjects. The quality rather than quantity or pattern of secondary school training is what is important. In fact, the evidence indicates no advantage in secondary school. Students admitted to college without complete high school credits are not different in achievement in college from students who completed the traditional sixteen units of high school work.

COLLEGE APTITUDE TESTS

College aptitude tests, also called psychological examinations and intelligence tests, actually differ from the traditional intelligence tests in that a large portion of the test is made up of items which definitely depend upon previous secondary school experience for their answers. Whereas the aim in constructing intelligence tests is to secure questions as free as possible from the effects of formal schooling, the college aptitude test is made to contain items which do depend on schooling. The relationship between college aptitude test scores and college marks varies widely depending upon the particular test used, the college in which it is used, and the kinds of students involved. Correlations ranging from +.22 to +.75 have been reported in the literature. Summaries of published reports indicate typical correlations, the middle 50 per cent of those reported, of +.40 to +.55 with an average not far from +.50. However, correlations in the range +.55 to +.70 are not infrequent. College aptitude tests devised especially for use in a particular college usually yield higher correlations than tests constructed and marketed for general college use.

PERSONALITY MEASURES

Some attempts have been made to use the scores from standard personality inventories as indicators of future academic success. Investigations have generally been limited to attempts to determine the correlation between personality scores and college marks. They have failed generally to demonstrate any appreciable relationships (Sappenfield, 1938; Thompson, 1934; Stagner, 1933; Fleming, 1932; Harris, 1931; Gilliland and Voas, 1930; Guthrie, 1927; Hoitsma, 1925; et. al.). A few investigators have found, however, some evidence for an appreciable relationship, e.g., Thurstone and Thurstone (1930) concluded that neurotic students were as a group, better students than their better adjusted fellows and Chambers (1925) reported correlations of +.54 and +.48 between academic success and net-differential score on the Pressey X-0 Test. Despite the generally adverse results obtained, personality scores do have some value in the indication of future academic performance when properly used. Stagner (1933) found correlations between academic success and college aptitude test scores of +.45 for a group of students with high neurotic tendency scores on the Bernreuter Personality Inventory, of +.60 for a group with low neurotic tendency scores, and +.51 for all students including these groups. He also found correlations of +.71 for students with high dominance scores as compared with correlation of +.44 for students with low dominance scores. Sappenfield (1938) showed that whereas the correlation between aptitude test scores and academic success was +.52 for all of his subjects, the comparable correlation for those students who scored low on both the dominance and sociability scales of the Bernreuter Inventory was +.69.

The findings vary widely from school to school and in many cases are contradictory. Personality measures may be useful to the admissions officer, especially in those colleges which on a priori grounds have stated a preference for students with particular personality patterns.

AGE AT ADMISSION

Summaries of the relationship between age at admis-

sion to college and subsequent educational achievement almost invariably show correlations of —.25 or more. Younger students obtain better marks in college than do older students (Cowan, 1930; Pittenger, 1917; Husband, 1923; Odell, 1927; Segal and Proffitt, 1937; et. al.). Youngness per se has no importance, but younger students are likely to be more intelligent and to secure higher scores on the College aptitude tests than do older students.

SIZE OF FAMILY

The existence of any important relationship between size of family from which the student comes and success in college has not been demonstrated. Of twelve studies reported between 1926 and 1937, seven indicated slight but statistically significant academic superiority for students from small families and five indicated no reliable differences. No study revealed differences favoring students from larger families.

PART-TIME EMPLOYMENT

There is a rather general feeling among college administrators, as indicated by their rules for students, that working for pay while going to school has an adverse effect on academic achievement. That this feeling is not based on fact may be inferred from the results of twenty studies reported between 1923 and 1937. That students working actually make better marks than nonworkers is indicated by seven studies, unfavorable results are found in seven; and no effect is reported six times. One should not assume that working has no effect on scholarship; perhaps the workers are originally better college material and if they were not working they might achieve even better marks.

PATERNAL OCCUPATION

Fourteen studies of the relationship between the socio-economic level of occupations of fathers and the children's success in college were published between 1923 and 1939 with equivocal results. In six instances it was found that children of professional fathers did better in college than did children of fathers whose occupation was rated lower. But six other investigators found no relationship and two found results in the reverse direction.

SUMMARY OF PREDICTORS

A wide variety of potential predictors have been used and subjected to statistical analysis to determine their efficacy for academic prognosis. Which are best and the extent to which each is useful in terms of predictive efficiency varies from school to school and even from course to course within the same school. In general the following are indicative of the results: (1) precollege educational record (usually high school teachers' marks) and scores on a one to two hour psychological examination are about equally predictive. Correlations between each and scholarships average in college are about +.40 to +.50. A few colleges report correlations between high school average and college average of +.55 to +.60 but in other institutions +.35 to +.45 is typical. Correlations between psychological examination scores and college marks vary even more widely occasionally being as low as +.20 and in a few instances being above +.65. In general a two-hour psychological examination score is about as predictive as a student's whole secondary school scholarship record. (2) Secondary school scholarship averages and psychological examination scores are also correlated to the extent of +.45 to +.60. An appropriately weighted combination of these two predictors are somewhat more predictive of college scholarship than is either one alone. Multiple correlations average about +.60 and occasionally exceed +.70. (3) Age at time of entrance to college is negatively related to college scholarship. Younger students make better marks than older students. However, age is also negatively related to psychological examination score from which it is inferred that younger students get to college earlier because they are brighter than older students. When age is combined with secondary school marks and psychological examination score the prediction is enhanced and the multiple correlation coefficient is increased by about +.05. (4) Scores on standard tests and inventories of personality are unrelated to college scholarship and non-predictive.

SUMMARY

The admissions officer who has conducted the studies necessary to establish the basic regression equation for optimal weighting of predictor variables most useful for his own institution can select with considerable validity those applicants most likely to succeed. But he will continue to conduct research aimed at (1) improving the predictive efficiency of already identified predictors, (2) finding new predictor variables which will increase the validity of his procedures, and (3) decreasing the time and cost of his program and at the same time increasing the efficiency of his procedures. Such items as scored application blanks, scored interviews for obtaining quantitative data, and measures of motivation have

not been developed for effective contributions of new predictor variables but hold promise for the future.

READING REFERENCES

Brown, A. H., and C. L. Nemzek, "A Comparative Study of College Success of Recommended and Non-recommended Students from One Detroit High School." *Journal of Social Psychology,* 1944, **20,** 277–281.

Cowley, W. H., *The Personnel Bibliographical Index.* Columbus: Ohio State University Press, 1932.

Edgerton, H. A., *Academic Prognosis in the University.* Baltimore: Warwick & York, 1930.

———, and H. A. Toops, *Academic Progress.* Columbus: Ohio State University Press, 1929.

Froehlich, G. J., "The Prediction of Academic Success at the University of Wisconsin, 1909–1941." *Bulletin of the University of Wisconsin, General Series,* 1941, No. 2358, 44.

Sarbin, T. B., "A Contribution to the Study of Actuarial and Individual Methods of Prediction." *American Journal of Sociology,* 1943, **48,** 593–602.

Weber, C. D., "Old and New College Board Scores and Grades of College Freshmen." *Journal of the American Association of Collegiate Registrars,* 1944, **20,** 70–72.

Williamson, E. G., and E. S. Bordin, "Prediction of Success in the Colleges of Science, Literature, and the Arts." *Studies in Predicting Scholastic Achievement, University of Minnesota,* 1942, **1,** 1–32.

69. PROFESSIONAL SCHOOL ADMISSIONS

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THE SPECIALIZED PROBLEMS OF SELECTION FOR PROFESSIONAL SCHOOLS

Many considerations in addition to those that harass the liberal arts college make selection for professional training important, First, the cost to the individual and to society of a professional education is great. Second, the professional school prepares for specialized kinds of life work; presumably these require for success, both in preparation and in practice, special personality qualities and abilities as well as general academic ability. Determining prior to admission whether an individual possesses these qualities may save social and personal costs.

Moreover, in a professional "calling," the ethics of practice and the possibility of social contribution, as distinguished from personal "success," are crucial. Therefore the motivation, which leads one to choose a given profession, the satisfactions which lead one to continue happily therein and which largely control the way one practices it, are relevant factors.

While actual professional performance is the final criterion of selection for professional education, it has seldom been used, and in the most extensive review of the subject, Kandel (1940) holds that no study of aptitude can ever predict professional success. Surely this is counsel of despair. It is admittedly difficult to obtain measures of professional achievement against which to judge the validity of our predictive procedures, yet there are many such, each imperfect, but in sum yielding valuable indices.

One such measure is the percentage of graduates who are successful *and happy* enough to continue in their profession. (In one study only 16 per cent of those accepted as freshmen in a leading engineering college actually persisted in their careers ten years. Surely here is evidence of great social waste which might be lessened by selective processes which had this criterion as its aim.) Other measures of professional achievement are: membership in professional associations (especially those with selective require-

ments), professional advancement of one kind or another, research and publication, distinguished public service, reputation as rated by professional associates (compare Cattell's method of obtaining starred ratings for *American Men of Science*), and even, with proper cautions and reservations, professional income.

It can hardly be seriously contended that information on these points, singly and in combination, would throw no light on the basic requirements of the profession. The fact is, however, that we have been satisfied if the admission procedures secured good *students*, and have assumed that these good students would make at least acceptable professional practitioners. But too many who succeed in their professional school work later fail in practice to make this an acceptable assumption.

SELECTIVE PROCEDURES

The following instruments have been used in evaluating fitness for admission to professional schools: (1) previous educational record, both general standing and marks in special courses; (2) tests of general ability or intelligence, of special aptitudes or abilities, and of achievement; (3) personality inventories or ratings; (4) interviews; (5) personal history and statement of one's purposes in seeking admission; (6) physical examinations; and (7) references.

Many of these have been long in use without benefit of the psychologists' analysis, but since they are means of determining whether a person can or will behave in certain ways, they are, directly or indirectly, psychological instruments. The proper administration of all of them (even the physical examination), and even more the interpretation of results, require adherence to psychological principles.

In practice, these instruments have been more commonly used for guidance and counsel than for selection. Only educational records and tests have been extensively validated by statistical evidence as a means of selection. The personal interview, the autobiographical account, references—all have been vigorously advocated as part of selection procedures, but there is almost no evidence that such procedures, at least as now used, contribute to selection, and almost no recognition of what can be done to lessen the hazards of subjectivity. A test which costs two hours in time and perhaps five dollars is rejected unless its value has been proved; an interview which costs ten to fifty times as much is accepted without any scientific evidence of its usefulness. The latter may be intrusted, moreover, to an official who has never studied interviewing methods and is unfamiliar with recent improvements in this method (Bingham and Moore, 1931; Rogers, 1942). The use of the personal history blank has been similarly haphazard, even though it has been shown (Troyer, 1940; Bittner, 1945; and Wherry, 1944) that such records can be profitably subjected to scientific analysis.

It is not our purpose here to disparage any of these means of selection, but to suggest that they are in need of scientific study and improvement. Following is a brief, general summary of the ways these instruments are used in selection, then an analysis of the specific facts for each type of professional school.

THE ACADEMIC RECORD

Almost all professional schools prescribe certain kinds and amounts of preprofessional academic preparation. The trend is toward increasing the amount of such general education, yet with extraordinary unanimity, investigations fail to reveal justification for the increase. The evidence, particularly from law, medicine, and dentistry, is that students entering these professional schools without any collegiate preprofessional school do as well as those with a college education.

Defense of preprofessional general education is thus usually based on that need for broader understanding which should, as all agree, characterize the professional man. A minority believe it possible, however, to make professional education itself inherently liberal and thus dispense with extensive preliminaries. However, until we frankly face the problem of assessing and using professional achievement as a means of judging how much education, whether general or special, is necessary, the validity of both arguments is doubtful. Apparently the only attested fact is that *amount* of preprofessional study, whatever else its value, is not an index of probable success in professional course work and training, and hence of little value in selection.

With few exceptions, to be noted below, the particular *pattern* of courses taken in preprofessional study also is not an index. Few courses or combinations of courses have much predictive power. Even certain ones which seem clearly related to the professional curriculum show little or no correlation with success.

Quality of academic preparation is another matter. Where grading standards can be evaluated, no other criterion so well predicts professional school marks as the marks in previous schooling. College grades

seem somewhat more reliable than high school grades. Indeed, from a selection point of view, two years of preprofessional training can be justified chiefly as a means of determining whether the student has the requisite scholastic ability and professional drive.

It is, however, difficult to evaluate the marking systems of all the colleges and secondary schools of the country. Where students come for the most part from a limited group of preprofessional colleges, it is possible to work out a weighting system which reduces the average marks of these colleges to a common standard. Such a correction of marks is in successful use at the University of Minnesota and Ohio State University. Even under the best of conditions, however, average marks, though the best single index available, are inadequate predictors of professional school achievement.

ACHIEVEMENT TESTS

Similar information is obtained from achievement tests as from the academic record. They have, moreover, the great advantage of standardization and comparability.

The carefully developed Graduate Record Examination may be regarded as a measure of general scholastic achievement. Its widespread use promises to free us from the idiosyncrasies of grading found among colleges, and give us a truly national yardstick of readiness for professional study. This examination consists of subtests covering mathematics, social science, physical sciences, biological sciences, literature, chemistry, fine arts, foreign language, and a test of a verbal factor and an advanced test of major subject. Candidates attempt all sections. The examination thus covers general background, or breadth, and specialization, or altitude. This or other standardized achievement test scores, together with the academic record, generally yield better prediction of academic success than either yields alone.

APTITUDE TESTS

Tests of general intelligence and of special aptitudes uncover much the same ability as the academic record and achievement tests do. Indeed many so-called intelligence tests are explicitly prepared to predict only academic ability as measured by marks, yet they also bring to light aspects of ability which are not well revealed by the latter measures. Therefore continued use of aptitude tests in professional schools is indicated.

INTEREST MEASUREMENTS

A man's interests are closely connected with the motivations that are essential to achievement in professional school or afterward. Objective measures of interests are thus among the most urgent needs in selection. Unfortunately, existing measures depend on the candor of the candidate and therefore have little use in selection, though they are of considerable help in guidance and counseling. A content analysis of autobiography, or of letters of recommendation has been suggested (Wherry, 1944) and should be of some use.

PERSONALITY MEASUREMENTS

Self-inventories of personality are even less likely to be candid than interest measurements. Promising attempts to conceal the implications of the questions in such inventories are now in the process of being worked out. Where candidates are well known to competent persons, ratings may be employed. Recent investigations indicate that properly devised rating procedures, though anything but foolproof, may be made to yield really helpful information.

At present, however, selection according to personality criteria, if made at all, is generally made subjectively by admission officers on the basis of utterly random information gained from interviews, references, experience records, autobiographies, and even from photographs.

MISCELLANEOUS CRITERIA

The health examination has not yet begun to play a large part in selective admission, though here and there candidates are refused admission by reason of special handicaps, such as blindness, deafness, orthopedic conditions; and a few institutions refuse admission to those who have certain types of communicable disease. Financial status is, of course, related to persistence in college and to success while persisting, but no systematic program for eliminating the financially unfit has been acknowledged by professional schools. In view of the length of the course of study, a case can be made for denying entrance to persons above a certain age, for their prospective professional career is too short for the cost of preparation. No evidence is presented which justifies setting a minimum age, though a few institutions arbitrarily impose one.

A number of more or less formal criteria are also imposed by different institutions for a number of reasons: place of residence, sex, race, religious affilia-

tion, nationality, marital status, etc. The validity of these criteria for admission is usually definitional or circular: if you want only men students, sex is a valid criterion for admission—and a statement by the candidate as to sex is usually reliable. In general, there is no attempt to justify these requirements on grounds of their relation to success; they are merely intended to protect certain vested interests. In what follows we shall consider only those selective indices which are believed, or at least alleged, to have relation to success in professional study or practice.

PRACTICES OF THE SEVERAL PROFESSIONAL SCHOOLS

GRADUATE SCHOOLS

Although the graduate school is commonly held to be the highest professional school, it is usually easier to gain entrance into the graduate college than into any other. In effect, selection for graduate work has been based almost solely upon sufficient persistence to obtain a bachelor's degree from an approved college, and upon a kind of self-selection. (If freed from social or economic pressure, however, the self-selection would probably be quite discriminatory.)

The prediction of success in graduate school was studied by Weber, Brink, and Gilliland (1942). All cases had been undergraduates at Northwestern and were undoubtedly a somewhat selected group, making differential prediction much more difficult. Nonetheless, undergraduate marks proved fairly effective in predicting graduate marks, the chance error having been reduced by more than a fifth. Marks in the major field were no more helpful than other marks and, of course, were less generally reliable because they were based on fewer elements. The intelligence of these students *as freshmen* showed low relation with their graduate marks ($r = .31$), which is not surprising when the possible changes in intelligence over four or more years and the highly selective nature of the group are taken into account.

Among the subjects of one study the number of undergraduate hours taken in the major field had no relation to graduate school success. With this particular group no combination of indices yielded better prediction than the single index of average undergraduate marks. The marks, however, were all obtained at one university. The need to compare undergraduate grades when candidates are drawn from many colleges is acute. The Graduate Record Examination is planned specifically to meet this problem. It has been found that candidates for the doctorate obtain definitely higher scores on the examination than those who are eliminated. The critical score for those who are accepted varies among departments and among colleges. Breadth of educational knowledge proves to be as important a predictor of advanced work as specific altitude of major field. In one investigation the G.R.E. predicted "ratings of success in graduate study about as well . . . as the whole range of academic data. . . . Moreover a simple average of the forecasts independently derived from these different sources closely approaches the practical limit of predictive efficiency" (Crawford, 1942). It is clear, then, that the G.R.E. improves selection, particularly where it is difficult to evaluate the undergraduate marking standards. But here, too, as in other cases the criterion is merely that of success in professional school.

The criterion of life career has been employed at Ohio State University in the graduate work of the Department of Psychology. The first step was to evaluate by careful ratings the professional achievements of those who had taken their doctorate in the department. These achievements were then compared with the personnel data available *when these persons were candidates for the degree*, thus making it possible to give weights to the several indices available. The criterion group was too small, especially in view of the period of time covered; and the only validation at present available is the belief of the department that selection has been improved. Here, at any rate, is evidence that professional success can actually and practically be used in selection.

MEDICINE

What has been regarded as the overcrowding of the medical profession—when literally millions of Americans are without adequate medical care—and disclosures of incompetence among both students and practitioners early led the medical colleges to experiment with selective admission. For almost twenty years chief reliance was placed on a Medical Aptitude Test prepared annually for the Association of American Medical Colleges. Early results were promising.

For a thousand medical students graduating in 1932, the combined criterion of being in the upper three fourths in aptitude test and in premedical college marks predicted 69 per cent of the actual failures and would have excluded only 4 per cent of those with high average marks in medical school. Since there are more applicants than the medical

schools are willing to receive, it would seem possible, by using the combined criterion, to eliminate two thirds of the failing students at the cost of rejecting a very small number who would have succeeded (Committee Report for 1936, *Journal American Medical Association*).

Since the Medical Aptitude Test was found somewhat erratic from year to year and from college to college, the Association in 1947 recommended to the medical colleges the use of the Graduate Record Examination. Predictive indices for the test have not yet been published but at the Ohio State University the multiple r with first-year medical school marks is 0.70 and the beta weight of the G.R.E. is considerably the largest of any in a battery of measures, which includes an intelligence test and the average of preprofessional marks.

The G.R.E., however, was not planned as a measure of specific professional aptitude. It is hoped, therefore, that the medical schools will continue to search for selector devices that will discover those likely to succeed specifically in medical practice and research.

PREMEDICAL PREPARATION. The trend toward requiring fewer science courses in premedical preparation finds confirmation in the fact that no particular combination of such courses seems to predict success better than another. On the other hand we find no evidence, in terms of their contribution to success in medical school, for a larger number of cultural courses. They may help in practice; no one knows. Neither the number or particular kinds of premedical courses, but the quality of work done by the student predicts achievement in medical school.

SPECIFIC ABILITIES. Both theoretical considerations and evidence indicate that the various elements of medical training and practice do not require the same abilities. Thus the correlation between preclinical (largely theoretical) and clinical (observational and practical) courses of about 0.60 indicates that the factors that are common to the two tasks are fewer than those that are different. Undoubtedly equally large differences obtain between the several medical specialties. Apparently nothing has been done to take this diversity of required abilities into account in selecting medical students. Were it done, more acute selection should be possible.

Jacobson's (1942) investigation indicates, moreover, that selection would be improved by taking into account the type of interest displayed—using such an interest inventory as Strong's. He finds, significantly enough, that medical candidates with a wide technical *scientific* interest do better in medical school than those whose interests are similar to typical practitioners. His data suggest that medical education is oriented rather strongly toward research interests, and that present selection methods tend to pick research men rather than practitioners.

These criticisms notwithstanding, probably more has been done to insure adequate selection in medical colleges than in other professions. Certainly what has been learned about selection is more widely used. Yet it is impossible not to conclude that the more significant half of the task, that of selecting those who will be happy and socially useful in the actual practice of the profession has not even been attempted along effective and scientific lines.

DENTISTRY

Like other forms of surgery, dentistry calls for a combination of manual dexterity and ability to understand "abstract" theory, which are relatively independent abilities. At Minnesota this independence has been recognized in the selection tests employed, but the validation criterion has been average marks in all courses for two years. Two thirds of the cases of inferior scholarship were predicted (Multiple $R = 0.813$) by a combination of the following indices: (1) predental college marks, (2) a metal filing test (Damon), (3) tests of visual memory and of mechanical judgment, B, from the Iowa Dental Qualifying Examination, and (4) the O'Connor Finger Dexterity Test. Achievement tests in science, reading tests (preferably using dental terms) and a test of relevancy of ideas are recommended, apparently on the basis of actual trial but without statement of the evidence (*Bulletin of University of Minnesota,* 1939).

Robinson and Bellows (1941) directly attacked the problem of two kinds of ability. The MacQuarrie Test for Mechanical Ability and the Finger Dexterity Test (as standardized by the United States Worker Analysis Section) were found to be predictive of manipulatory courses, while achievement tests in chemistry and zoölogy were predictive of dental theory.

As in other studies, interest and personality measures and the Moss Medical Aptitude Test had but slight relation to marks. The subtests of the Thurstone Primary Ability Scale were not specifically differentiating. Excellence rather than amount of predental training was associated with success.

Many dental schools are currently experimenting with the Graduate Record Examination, apparently with positive results.

NURSING

High intelligence as shown by tests is predictive of grades, particularly of high grades, in nursing schools. There is evidence, however, that highly intelligent nurses tend to become dissatisfied with their career (Clark and South, 1935).

At Minnesota University a combined index was based on the Moss Nursing Aptitute Test, the Cooperative General Science Test, the Douglass-Gordon Nurses' Fractions Test, a test of English, and average high school marks. It predicted marks in the top- and bottom-fifth of the class in about two thirds of the cases. Lack of interest in nursing was found to be the chief cause of failure to achieve as well as predicted. J. Hilgard (1939) found that the nursing key of the Strong Inventory has a slight association with success in nursing school.

A number of recent studies have failed to find a personality pattern associated with success in nursing. Considering, however, the importance of the nurse-patient relation, it is probable that such a pattern exists. It is hoped that it will some day form part of the basis of selection and training.

THEOLOGY

The intellectual requirements of theological seminaries present no peculiar problems. Nowhere, however, are the relatively intangible factors of character, personality, and motivation of such importance. Selective procedures, apparently, have been based on interviews, references, and subjective judgments.

A calling to the ministry (which probably means a particular pattern of interests) is especially important; but interest inventories, such as the Strong Inventory, which base scoring on the replies of successful persons in the several professions are subject in this case to a special hazard. In no other profession are "successful" practitioners more distinct in personal qualities from the run-of-the-mine than in the ministry. The pattern of interest shown by "successful" ministers of fashionable city churches would almost certainly select men who would be both unhappy and unsuccessful in the average church. And there are other differences in interest, for example as between evangelicals and ritualists, scarcely less pronounced. A real job analysis of the profession to determine its essential characteristics seems seriously needed. Very little research has been made in this field regarding selective procedures.

LAW

Tests for legal aptitude were experimentally employed in the late twenties; but a leading authority on legal evidence attacked them severely because they had not been satisfactory in his "personal experience." Perhaps because of this, tests have found much less use in legal than in medical education.

Yale University and Columbia University report reduction of failure by a fifth when admission is based upon (1) prelaw college marks, (2) letters of recommendation from college instructors, (3) personal interview, and (4) an aptitude test. No formalized method of combining these criteria is reported. The Yale aptitude test, however, was not sufficiently predictive at Minnesota, Illinois, or Wisconsin. Such variations in correlation between a fairly reliable test and grades at different professional schools suggest a disconcerting lack of uniformity in the professional goals and the correlated grading systems. As in other professional schools, no particular pattern of subject matter in prelaw education is predictive. Again average marks are the best single predictor.

ENGINEERING

As Kandel (1944) points out in an excellent summary, the attempt to test for engineering aptitude has had a long and checkered history. There has been much scattered research but little careful follow-through, due in part to the fact that few engineering colleges have until recently been concerned with restricting enrollments. Thus in 1936 the Society for the Promotion of Engineering Education found seventy-four of the leading ninety-four colleges using tests, but only six used them for selective admission. When engineers take selective admission more seriously, it is apparent from the data available that their chief reliance should be placed on ability in mathematics and natural science as measured by achievement tests. English and social science achievement tests, on the other hand, are of little value *for predicting marks:* marks, however, made in a professional curriculum which many engineers criticize as stereotyped and narrow, as failing to deal with "the personal attitudes, the ethical traditions and the functional responsibilities in society which give the profession its distinctive hallmark" (Wickenden, 1929) or with "skill in organizing and directing human activities" (Bingham, 1937). Engineering as a profession is a more diversified activity than is recognized in most engineering curricula.

The criterion of life career is recognized by Slaymaker (1947) who found that those who make high scores on a test of understanding contemporary society and more moderate scores in the mathematical and technical parts of a test battery tend more toward administrative engineering. The Strong Interest Inventory also takes account of postcollegiate success, and of different kinds of engineering. A high score in engineering interest is definitely associated with continued satisfaction in the practice of engineering as it is today. Widespread adoption of the inventory as a selector for engineering education may, however, tend to freeze the status quo, to produce more engineers like those we already have. May it not be that society needs more engineers who will be *un*happy in doing the now conventional work of engineers, who will have more imagination with respect to both social and technical implications of their profession?

TEACHING

Almost alone among professional schools, those for teachers have been consciously dissatisfied with the attempt to select students merely for grade-getting, and have gone beyond the artificial confines of the professional school for data.

Yet success in teaching is probably harder to evaluate than success in any other profession; and despite much thoughtful discussion and some research, no valid standards have yet emerged. Certain desirable traits in a teacher can indeed be listed but these traits are seldom independent or unitary; their absence can be compensated for. And, above all, they are usually the products of education and training, not prerequisite to it. Thus we find "attractive to children" listed as a desirable trait. Attractiveness, however, is a combination of many elements in ever-shifting patterns—surely not a unit. A cultured voice may be one element in attractiveness, yet its lack may be more than compensated for by a sense of humor. And, finally, we do not dare estimate whether a person entering college at 18 or 19 will develop into a "personality attractive to children" by the time he finishes his training period.

A number of tests intended to be measures of teaching aptitude have been tried but without much success. They seem to be primarily tests of scholastic aptitude. A clinical approach, however, in which the student is helped to understand his own inclinations and aptitudes reduces early failure in teaching, in part by guiding unfitted persons out of the profession.

The most elaborate selection program is probably that used by the New York state teacher education institutions in preparing elementary teachers (Behrens, as cited in Troyer and Pace, 1944). It involves a scrutiny of high school marks, a test of scholastic aptitude, achievement tests in reading and in English, ratings of personality, and a physical examination. The rating takes into account personal appearance, social adaptability, enthusiasm, emotional qualities, breadth of experience, use of English, voice and diction, and speech defects. Each of these eight major qualities is defined in terms of fairly objective subordinate or component qualities. At least two ratings are required. For the combined index, high school marks are weighted 40 per cent, the aptitude and achievement tests (which overlap with marks) each 10 per cent, the personality and speech ratings 30 per cent. Apparently the medical examination is an all-or-none factor in selection. Evidence is not presented that the program is actually selecting better students; one can only say that the program is at least workable.

A measure of interests, particularly one which stresses interest in people, should help in satisfactory selection. In evaluating an experience record, consideration may be given to whether the candidate has failed to seek or to take advantage of opportunities for "teaching-like" experience—activities such as leadership in clubs and camps, especially with younger children, in Sunday School, and in the home-care of children. Failure to try oneself voluntarily in a teaching situation may be diagnostic, for actual tryout leads many to decide for themselves against a teaching career. Certainly, no person who has not had such experience, should be permitted to stay long in a curriculum for teachers.

At Ohio State University a selection program prior to the junior year is based largely on this type of "field experience" as a means of evaluating teaching aptitude. The criterion, moreover, is precisely the qualities judged most valuable for teaching as these have been revealed and developed through a teaching-like experience. Validation of this plan, which is still experimental, will be difficult and will take time; it is proposed to make actual evaluations of teaching success according to a variety of carefully selected criteria. Such evaluation must, of course, wait until the selected students are established in their profession. Sampling errors, subjective judgment, the mobility of teachers, and many similar obstacles remain to be overcome. But at least here is resolute determination to use the criterion of actual performance in selecting persons for professional training.

SUMMARY

The best single predictor of marks in professional school is the average of previous academic marks. Little is added in most cases by considering the specific pattern of courses or the length of preparatory work. In short, to predict marks, use marks.

Chiefly because the marks received in various preparatory schools and curricula are not wholly comparable, the prediction can be improved by using standard achievement tests and tests of general intelligence. Average previous marks and such tests when used together probably predict marks in professional school about as accurately as it is possible to predict so unreliable a criterion.

One cannot, however, survey present admission procedures in professional schools without realizing how narrowly academic are the criteria of success as well as the predictors of success. Yet by universal consent, such factors as professional ethics, social outlook, character, drive, and personality (including all the diverse meanings of that term) are more important than academic marks for a successful and socially useful career in a profession. Racial selectivity as a means of insuring personal character, though practiced, is unworthy of consideration.

Here and there a sufficient number of promising attempts have been made to select those students for professional training who bid fair to succeed in practice. Future progress surely lies along these lines.

READING REFERENCES

Crawford, A. B., *Measuring Promise for Graduate Work.* New Haven: Yale University Press, 1942.

Kandel, I. L., *Professional Aptitude Tests in Medicine, Law, and Engineering.* New York: Teachers College, Columbia University, 1940.

Sells, S. B., "Measurement and Prediction of Special Abilities." *Review of Educational Research,* 1944, **14,** 38–54.

70. COLLEGE STUDENT PERSONNEL SERVICES

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INTRODUCTION

THE STUDENT PERSONNEL POINT OF VIEW

The past three decades are noteworthy from an educational point of view for the increasing emphasis placed upon the student as an individual. The student is no longer regarded as a standard part to be assembled on an intellectual production line nor is he considered an impersonal two-by-four to be fitted into the preconceived structure of a prefabricated curriculum by a master mind-mechanic. Today the stress is laid upon a personalistic philosophy of education which recognizes the psychological reality of individual differences and the need to prepare the student for living as well as for learning. The atomistic conception of the student as an intellect to be nurtured and a mind to be disciplined has been replaced by the broader and more embracing philosophy of the student as a living, breathing totality whose intellectual, emotional, social, vocational, and moral values are to be integrated into a cohesive personality organization based upon a sound and comprehensive curricular and extracurricular program. It is not enough to fit the student to the college; the college must be sufficiently flexible to adapt its offerings to the student. Instruction must be student-centered rather than textbook-centered.

The personnel point of view does not imply that intellectualism must be supplanted by vocationalism or personalism, that intellectual and cultural development must be replaced by vocational prepara-

tion or personality growth, but rather that all these educational objectives be synthesized into a unified program geared to the fulfillment of the potentialities of the individual as a whole in all spheres of endeavor. The personnel point of view is predicated on the assumption that the various approaches are supplementary and coordinate, not mutually exclusive or irreconcilable. The personnel point of view, fundamentally opposed to restriction of educational aims, does not advocate an equally unwarranted limitation of objectives to character growth at the expense of intellectual enrichment. It is "opposed to the view which limits higher education to intellectual development, professional education, or research" (Cowley, 1938).

STUDENT PERSONNEL WORKERS

The wide variety of student personnel functions is equalled only by the diversity of college personnel performing these functions. The preparation of these workers ranges from limited, informal, in-service training to professional specialization in psychology, medicine, and social work. Among those who may be classified as college personnel workers are Freshman Week advisers, upperclassman or graduate student advisers acting as assistants during Freshman Week or as counselors in dormitories, registration advisers, curriculum advisers, religious advisers, deans of men and women acting as advisers or supervisors of extracurricular and social activities, faculty advisers, educational and vocational counselors, teachers, psychologists, physicians, nurses, psychiatrists, speech pathologists, academic deans, directors or deans of personnel, and directors of employment or placement.

COLLEGE STUDENT PERSONNEL FUNCTIONS

The following services are generally classified as college student personnel functions: (1) selection and admission of students to college, (2) registration and selection of curricula, (3) orientation of students to institutional facilities and college life, (4) maintenance of physical health, (5) selection and supervision of extracurricular and social activities, (6) individual counseling on educational, vocational, and personal problems, (7) remedial work in the areas of subject disabilities and study techniques, (8) financial assistance to needy students, (9) job placement before and after graduation, (10) follow-up of work among students in order to ascertain the effects of personnel policies on individual adjustment, and (11) research on existing and projected personnel techniques and services.

ADMISSIONS

The importance of a sound admissions policy is readily appreciated in the light of the alarming incidence of withdrawal among students admitted to colleges and universities. Bradshaw (1941) points out that of all the students admitted to colleges each year "approximately 65 per cent will leave the institution without graduation." Among the more common causes of this high student mortality rate are: (1) low scholastic aptitude, (2) insufficient motivation, (3) inadequate study skills, (4) reading deficiencies, (5) lack of an appropriate vocational goal, (6) personal problems (e.g., illness, financial difficulties), and (7) emotional or social maladjustment. Professionally trained personnel workers have done much to ascertain the relative significance of these factors and to contribute to the development of admission requirements which will admit a high percentage of potentially successful students while eliminating the great majority of prospective failures or withdrawals. The technical aspects of college admissions are discussed in other sections of this chapter.

SELECTION OF CURRICULA

Advising students as to the nature, sequence, and distribution of courses in an appropriate academic curriculum is a personnel function usually discharged by faculty counselors or advisers. These advisers should be selected in terms of their general competence, familiarity with educational programs, requisite personality characteristics, and expressed preference for this type of work. Ideally, vocational guidance should precede the selection of a curriculum. The assumption is generally made that the student is capable of making a vocational choice suitable to his aptitudes, interests, and personality traits, and based on a careful consideration of the nature of the work and the existence of employment opportunities. Too often, however, students are more concerned with the selection of major and minor subjects than they are with the occupational conversions of these courses. A student may take a four-year English major, for example, and graduate from college with little or no conception as to the vocational possibilities inherent in such a major.

For the most part, curriculum advisers accept the educational choice of the student without question on the assumption that the student knows what is

best for himself. This policy inevitably leads to future curricular readjustments and much needless loss of time and effort. Even where an appropriate curriculum has been followed, however, readjustments may be necessary. Excessive extracurricular participation or part-time employment may necessitate a lightening of the educational program or a reduction in nonacademic activity. Failure or near-failure in one or more courses may also make a program reduction advisable. On the other hand, an increase in curricular load may do much to relieve the boredom of a superior student who finds his academic responsibilities insufficient to challenge his capabilities. Curricular changes might also be reduced if curricula were made sufficiently flexible to suit the needs, capacities, and interests of the individual student rather than constructed along rigid lines permitting little or no deviation from traditional content. There is a growing need for "self-selection" as a principle of curriculum and method (Olson, 1945).

ORIENTATION

Orientation has been defined as covering "all types of activities carried on with groups of students to aid them in their adjustments in college." It might be more simply defined as "getting acquainted at the beginning" in the sense that the orientation program is usually carried out in Freshman Week programs. The aim of such a program is to assist new students in "feeling at home," to minimize feelings of strangeness and loneliness, and, in general, to facilitate adjustment difficulties incident to the transition from high school to college. Orientation programs naturally vary somewhat in different institutions, but generally include several of the following activities: (1) completion of registration, (2) intelligence and achievement testing, (3) contacts with faculty or student advisers, (4) tours of the campus to familiarize students with the location of buildings, laboratories, libraries, study rooms, and social rooms, (5) freshman assemblies, teas, and socials, (6) group lectures relative to such topics as housing facilities, athletics, publications, and student organizations, and (7) group conferences or individual interviews with faculty members concerning the availability of personnel and counseling services and the existence of how-to-study classes or semitutorial groups.

It should be emphasized that the orientation program, or any form of group-guidance program, is a supplement to, not a substitute for individual counseling and guidance (Bennett, 1938). Like group intelligence tests, group guidance subserves a useful function in the sense of contacting a maximum number of individuals in a minimum amount of time, but it suffers from the same limitations of coarse approximation and uncertain individual participation. What is needed is a more cohesive administrative articulation between the orientation and individual counseling programs to assure more effective utilization of both services.

HEALTH

Virtually all colleges today require that students undergo a physical examination early in the first term in order to uncover any physical defects or latent disease that might hinder the student's scholastic progress or endanger his health or the health of his fellow students. Other health services include: (1) dispensary service to reduce absenteeism, prevent communicable diseases, and to insure early diagnosis and treatment, (2) infirmary or hospital care, (3) physical supervision of athletes to determine fitness for athletic participation, (4) supervision of individual corrective gymnastics to remedy defects of posture or faulty body mechanics, (5) campus sanitation, and (6) health instruction in the form of hygiene courses (Boynton, 1941). Among the more frequent physical defects of college students are: (1) dental caries, (2) chronic nasal obstruction, (3) underweight, (4) spinal curvatures, (5) chronic tonsillitis, (6) uncorrected visual defects, (7) overweight, and (8) flat feet (Diehl and Shepard, 1939).

While these services are performed by physicians and nurses, the nonmedical college personnel worker should have a general acquaintance with the nature of medical disabilities because of their psychological significance for student adjustment. Students with visual and auditory defects should be called to the attention of the instructional staff in order that front seats in the classroom may be assigned. Faculty advisers may suggest the desirability of a lighter curricular load in the case of anemic, cardiac, or undernourished students. Curtailment of extracurricular or social activities may be recommended to the posttubercular or postencephalitic. Financial assistance may be necessary in dealing with financially weak students with physical handicaps who are unable to do part-time work needed to earn expense money. Certain defects, such as acne, stuttering, or a deformed hand, may produce an emotional sensitivity and feeling of social inferiority requiring the assistance of a mental hygiene counselor or psychiatrist. Other disabilities may necessitate a recon-

sideration of vocational plans. A student with flat feet may be dissuaded from entering dentistry or surgery; the importance of a good delivery may be pointed out to prospective teachers, salesmen, or lawyers suffering from speech defects; the inadvisability of preparing for social work or personnel administration may be indicated for the psychoneurotic.

EXTRACURRICULAR ACTIVITIES

Extracurricular activities, or "student activities," as they are sometimes called, embrace a diversity of recreational and social functions and organizations. They include: (1) athletics, (2) student publications, (3) debating teams, (4) orchestra and choral groups, (5) dramatic societies, (6) religious organizations, (7) departmental clubs, (8) academic honorary societies, (9) student activity honorary societies, (10) socio-political organzations, (11) veterans' groups, (12) fraternities and sororities, (13) hobby groups, such as chess, photography, and radio clubs, and (14) student government organizations.

The avowed purposes of such activities are: (1) to provide wholesome recreation, (2) to acquaint the student with his classmates, (3) to foster good fellowship, (4) to afford training in social cooperation and leadership, (5) to develop interest in a particular field as a recreation and hobby as well as a subject of study, (6) to provide recognition for exceptional academic or nonacademic achievement, and (7) to afford preliminary practical training of vocational value (e.g., publications, debating, dramatics). There are relatively few carefully controlled studies designed to evaluate the degree to which these aims are being realized. Although almost all higher institutions include social development as one of their objectives, Lloyd-Jones (1941) concludes that "surveys indicate that colleges do comparatively little to develop integrated institutional programs to further social aims." She goes on in her summary of the literature to point out that about half of the students do not participate in organized campus activities and that a high percentage take no part in off-campus activities. Moreover, economic circumstances preclude or decidedly limit the active extracurricular participation of students with financial problems.

Professionally trained personnel workers and counselors can render a much needed and often overlooked service with respect to extracurricular activities by assisting students in selecting activities consonant with their abilities, interests, personal needs, and personality characteristics. Too many students select activities uncritically. The underachieving student may be advised to limit his nonacademic activities; the superior student who is not making the most of his potentialities because of an insufficient or unchallenging academic program may require stimulation in the direction of increased student-activity participation. The prospective lawyer may be asked to try his hand at debating; the prospective writer, at student publications; the prospective public administrator, at student government. Educators and psychologists have had much to say about vocational guidance; the field of "avocational guidance" is still pioneer territory.

COUNSELING

Individual, as distinguished from group, counseling takes place in a face-to-face situation between student and counselor, and involves "listening, accepting, understanding, and helping a student recognize the psychological forces to which he is being subjected and evaluate and use the resources within himself and his environment to develop his potentialities" (Bradley, 1945). The paramount objectives of counseling are to foster self-understanding and to encourage the student to think about himself and his problems more objectively (Wrenn, 1941). The policy has been too prevalent in many higher institutions to restrict counseling facilities to those students presenting problems of scholastic deficiency or personal maladjustment. A broader conception looks upon counseling as a service to be applied to the developmental needs of all students, bright and dull, adjusted and maladjusted, vocationally decided and undecided. "Normal" individuals can be assisted to achieve an even more satisfactory adjustment, and maladjustments in all areas can be precluded or at least minimized through emphasis upon the preventive aspect of counseling.

Individual counseling is conventionally broken down for didactic purposes into educational counseling, vocational counseling, and personal counseling. Educational counseling is primarily concerned with the student's academic problems, such as the choice of a curriculum, selection of majors and minors, failure or underachievement, reading disabilities, and ineffective study habits. Vocational counseling deals with the selection of a vocational objective congruent with the student's interests, values, aptitudes, physical capabilities, and personality makeup and conforming to the realistic criterion of the availability of training and employment opportunities. It includes the presentation of occupational information and a discussion of the nature and length of institutional or on-the-job

training which is entailed. Personal counseling has to do with emotional and social maladjustment, family relationships, health problems, disciplinary action, and financial difficulties.

This classification, while expedient from a pedagogical point of view, is more descriptive than explanatory and is subject to the justifiable criticism of oversimplification. In practice, the three "types" of counseling merge into one. It is hardly practicable to advise a student on the selection of a major subject without consideration of his vocational ambitions, individual capabilities, and personality characteristics. To select optometry as a vocational objective without reference to the student's capacity and inclination to undertake courses in mathematics would be equally injudicious. The inadvisability of dealing with a feeling of inferiority in the abstract by ignoring the student's academic progress and vocational aspirations is transparently self-evident. Counseling is an all-embracing, dynamic, integrative process involving all phases of the individual's adjustment. Ideally, it should begin prior to matriculation, continue throughout college, and persist beyond graduation in the form of follow-up contacts.

The psychologist's chief contributions to individual counseling comprise: (1) the construction and interpretation of objective psychological tests of intelligence, special aptitudes, educational achievement, interests, values, attitudes, study skills, and personality to facilitate the analysis of assets and liabilities and the diagnosis of present and potential problems, (2) the development of interview and counseling techniques for informational, diagnostic, and therapeutic purposes, and (3) the insistence on the application of a scientific point of view opposed to uncritical and casual observation in the development of counseling procedures and the evaluation of counseling outcomes.

REMEDIAL WORK

The function of the student personnel worker in relation to remedial work is primarily to diagnose and refer rather than to treat. Recognition that a problem exists and diagnosis of the specific areas in which remedial work is advisable are necessary first steps. The problem as stated by the student should never be taken at face value; too often, the fundamental difficulty may be one which the student himself may never suspect. Diagnosis may be made by analysis of grades, interpretation of test results, and application of clinical counseling techniques. The problem should then be specifically restated by the counselor in terms of all the available evidence. It is insufficient to state, for example, that the student's low grades are attributable to a reading disability. It should be indicated whether the deficiency is in oral or silent reading, in word recognition or connected discourse, in rate or in comprehension. If possible, the probable causes of the deficiency (e.g., low intelligence, narrow perceptual span, defective vision, emotional maladjustment) should be isolated. Similarly, it is psychologically more meaningful to point out that a student budgets his time poorly, takes inadequate notes, and crams before examinations than to state that his study habits are ineffective. In the case of health problems, of course, diagnosis is relegated to the physician.

The personnel worker should be familiar with referral sources both in the university and in the community, in order that he may refer the student to specific sources, such as reading clinics, speech clinics, mental hygiene clinics, and how-to-study classes. For example, it is not enough to tell the student that he needs remedial drill in reading. The name and address of a specific reading clinic should be indicated. One of the six major dissatisfactions in counseling expressed by 45 students from 17 different Midwestern colleges and universities was the observation that recommendations were too vague (Speer, 1945). The personnel worker should also be available for consultation with the agencies in order to provide a coordinate basis for effective remedial action.

FINANCIAL ASSISTANCE

Since the turn of the century, the extension of educational facilities, the increase in length of professional preparation, and the desire of the younger generation to rise above the family socio-economic level have resulted in a sharp increase in the number of wholly or partially self-supporting college students. There are three schools of thought relative to the advisability of financial assistance in colleges and universities. One extreme view holds that only those students who can afford it should attend college. A diametrically opposite, but equally extreme, view advocates that college should be available to all those who seek it. The middle-of-the-road and majority view supports the position that college should be available to all who can profit by it (Sharpe, 1941).

The most common kinds of financial assistance are: (1) scholarships and fellowships, (2) loans, (3) grants-in-aid, and (4) part-time or summer employment. Awards are generally made in accordance with criteria of academic aptitude or achievement, finan-

cial need, and personal qualities, such as character, leadership, or professional premise. Smith (1936) points out that the bases for selection are largely arbitrary and opportunistic and are seldom the outgrowth of research. While scholastic aptitude, as measured by marks and entrance examinations, may be evaluated with a fair degree of objectivity, financial need and personal qualifications are often considered in the light of subjective criteria, based on statements of parents, teachers, and principals. There is a growing need for (1) scientifically constructed rating-scales, questionnaires, and projective techniques to supplant general letters of recommendation, (2) itemized budgets and carefully worked out financial statements to replace general statements of financial need, and (3) standardized personal interviews to supplement information acquired through paper-and-pencil or other impersonal avenues.

The literature on the effects of self-support on college achievement is somewhat contradictory and inconclusive, although the weight of evidence would seem to indicate that self-supporting students academically do as well, if not better, than their financially more fortunate fellows, presumably because of compensatory motivation and more effective time-budgeting. While certain studies suggest that employed students show little or no decrease in social activities and recreation, Sharpe's (1941) conclusion from a number of researches is that "twenty hours a week devoted to part-time work produces little effect on marks and health but tends to curtail social activities, particularly in the freshman and sophomore years."

PLACEMENT

The personnel point of view holds that the responsibility of the college for the student's vocational adjustment should not cease with graduation and cannot be considered complete until the graduate is a functioning member of society (Beatty, 1941). This responsibility is not limited to students successfully completing the curriculum. Schwebel (1947) describes a guidance program at Mohawk College designed to reorient vocationally the withdrawing or unsuccessful student. Placement services are also concerned with part-time or summer employment while the student is attending college. Student personnel placement functions include: (1) establishing contacts between the student and the employer, (2) acquainting the employer with the student's educational preparation and personal qualifications, (3) furnishing the student with information about the prospective employer, (4) familiarizing the student with employment opportunities, and (5) training the student to present his qualifications in an effective manner. Where undergraduate part-time, rather than graduate full-time, placement is concerned, or where the "cooperative" plan of education, in which the student spends part of his college years in industry, business, or other vocational employment (e.g., Antioch College), is involved, placement assists the student in (1) eliminating possible vocations and selecting suitable ones, (2) "feeling at home" on the job when he graduates, and (3) achieving advance ratings in experience upon entering into the occupation (Hoppock and Pavan, 1941).

Since placement may be regarded as the culmination of all student personnel procedures, closer coordination between the placement officer, instructional departments, and other personnel workers is strongly needed. Information about the student obtained by decentralized personnel offices should be pooled and made available to the placement officer. Psychologists may contribute to the placement procedure by recommending or developing objective instruments, such as achievement or trade tests, to supplement teachers' grades and ratings as a basis for evaluation of the student's qualifications. More carefully controlled follow-up studies are needed to ascertain the value of placement procedures and to isolate factors relevant to improved placement policies.

NEEDED RESEARCH

The entire field of college student personnel work is sorely in need of more comprehensive, better controlled researches employing larger samples and utilizing more adequate criteria. The return of the veteran raises new personnel problems in relation to admissions, orientation, study methods, and remedial training (Kiely, 1945; Hadley, 1945; Traxler, 1945). Counseling programs must be evaluated in the light of new demands in vocational, religious, and financial counseling (Blaesser, 1945). The vocational advisement of veterans in accordance with the provisions of Public Laws 16 and 346 must be critically appraised in connection with the relative merits of long-term and short-contact counseling procedures (Super, 1946). Problems best handled by group guidance or individual counseling procedures as independent or supplementary measures should be investigated. The relations between stated problem and actual problem and between self-analysis and counselor-analysis are still to be explored. The preventive

and corrective aspects of student discipline, as well as the educational philosophy underlying disciplinary procedures, constitute comparatively neglected fields (Haggerty and Brumbaugh, 1939). The areas of college group life, social development, group morale, and loyalty to the institution are relatively untouched. While progress has been made, more intensive research is needed in relation to the development and validation of interview and counseling techniques, diagnostic intelligence, achievement, and personality tests and study skills tests, and in connection with the empirical development of aptitude, interest, and personality test profiles for all college curricula. Finally, more thoroughgoing and painstaking follow-up studies (Williamson and Bordin, 1941) including periodic interviews, periodic inspection of the case file, statistical analysis of case records, and development of more adequate criteria, must be undertaken to determine the general effectiveness of all student personnel services on individual educational, vocational, and personal adjustment.

READING REFERENCES

Blaesser, W. W., et al., *Student Personnel Work in the Postwar College*. Washington, D.C.: American Council on Education, 1945.

Monroe, W. S. (ed.), *Encyclopedia of Educational Research*. New York: The Macmillan Company, 1941, pp. 248–326.

Strang, Ruth, *The Role of the Teacher in Personnel Work* (rev. ed.). New York: Teachers College, Columbia University, 1946.

Williamson, E. G., *How to Counsel Students*. New York: McGraw-Hill Book Company, Inc., 1939.

———, and J. G. Darley, *Student Personnel Work*. New York: McGraw-Hill Book Company, Inc., 1937.

CHAPTER XI

CLINICAL PSYCHOLOGY

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71. THE PSYCHOLOGICAL EXAMINATION

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INTRODUCTION

The psychological examination as used in clinical psychology is essentially a relatively standardized interview situation the purpose of which is to gain an objective and reliable evaluation of certain aspects or segments of an individual's behavior. It includes, but is not synonymous with, the narrower field of "clinical psychometrics." This field of work consists of the administration of psychodiagnostic tests to obtain assessments of various abilities or personality trends. The psychological examination, on the other hand, involves an analysis and evaluation of *all* available data on an individual that have been obtained through a variety of methods, including interviewing, case-history taking, observation of spontaneous behavior, and the utilization of projective techniques, as well as test procedures designed to yield indices of level of performance or strength of personality trend.

It is important that this fundamental distinction between the psychological examination and psychometric testing be fully appreciated. The psychological examination is a broad evaluative procedure requiring of the clinician not only technical skill but also professional sagacity. The psychometric test is a relatively narrow and restricted procedure for assessment of performance often administered by a technician and requiring interpretation by a thoroughly trained clinical psychologist. To draw comparisons with procedures in medicine, it might be said that the psychological examination is analogous to the physical examination or the neurological examination, while clinical psychometrics is analogous to the quantitative tests of the clinical laboratory.

Recent developments in the psychological examination have centered chiefly in two areas. The first is that of "psychodiagnostics," that is, the search for more definitive diagnostic methods that can be applied according to standards of objective scientific procedure. The second (which in a sense provides a necessary balance to the first) has been the freeing of the psychological examination from too rigid procedures, in order to allow for observation of individual behavior. Both of these developments are in part a logical development of the relative clinical sterility of former procedures.

Reference to history will make this point clearer. In the early part of this century, the development of the intelligence test led prematurely to a quantification in the field of mental testing and psychodiagnostics that was not justified by the type of data being obtained or by the existing state of knowledge concerning human traits. The fruits of this quantitative point of view, the "intelligence quotient" and "mental age," attained too great prominence and caused in an unfortunate way the structuring of the whole field of diagnostic psychology. Educators, physicians, and social workers came to regard psychodiagnostics as a kind of classification system whereby an individual might be recommended for anything ranging from promotion in school to institutionalization for life on the basis of a single numerical score. Obviously, such practices were unsound. It became increasingly evident that intelligence testing was not an assessment of some innate potentiality called "intelligence" but only a sampling of behavior with some predictive significance.

In trying to measure intelligence, a concept that was as yet ill defined was being measured. Any individual could show marked variations in the tested

behavior where changes took place in personal adjustment, physical or mental health, educational opportunities, or home conditions. Indeed, a single numerical index such as the I.Q. was least likely to be a significant indicator of future adjustment for the very persons who were most likely to be seen in a clinic, since such were the patients who were victims of unfavorable constitutional or environmental influences. It was necessary, therefore, to find methods of diagnosis that were both more realistic and more comprehensive.

The measurement of intelligence is now considered only one part, and in many cases a small part, of the psychological examination. More careful analysis of individual patterns of response on intelligence tests has led to concern with the relationship between such patterns and behavioral anomalies. The study of the effects of such factors as mental illness, brain damage, mental defect, and emotional disturbance on test responses has led to the use of such responses diagnostically and to the development of testing procedures for the examination of specific types of defect. This, in turn, has necessitated the development of techniques for the study of the behavior anomalies themselves, their possible causation and development.

The clinical psychologist of today has adopted a somewhat different and broader orientation toward the use of objective tests than heretofore. Also, he has added many tests of specific behavioral functions and "projective" techniques to his kit for the assessment of personality variables. And he uses the personal interview, applying it to the particular clinical problem.

THE PERSONAL INTERVIEW

Whether one is dealing with adults or with children, with essentially normal persons or with psychoneurotic or psychotic patients, the personal interview has two fundamental purposes.

First, it is a means of securing a case history, without which adequate diagnosis is difficult. The case history provides a genetic setting and a frame of reference within which the problems and observations of the examination may be interpreted, and it is frequently decisive in determining the true significance of clinical findings. Without an adequate history, the clinician may be led astray by current findings and make a radically erroneous formulation of a patient's problem.

A ten-year-old boy with the complaints of a marked decline in quality of school work, negativism, and disobedience was referred to one of the writers. He showed marked hostility toward his mother, a younger brother, and an overstrict teacher, and a recent change in school had taken place with a loss of playmates. Examination and interview were suggestive of several possible explanations of a psychogenetic character and it would not have been difficult to formulate his problem purely in terms of these factors. However, the history revealed that two years previously a series of convulsive episodes had occurred and that the child had been under the care of an ophthalmologist for a vaguely defined but undoubtedly progressive visual difficulty. Following these "organic" leads in the history, it was finally determined by neurological investigation that the boy was suffering from a cerebral degenerative disorder and that the poor school work was undoubtedly an expression of a progressive impairment in intellectual function determined by organic factors.

Several adequate guides for taking case histories are available. These outlines generally cover the following areas: a statement of the problem presented by the patient; family and social history; personal history (early development, health, schooling, and social and recreational activities). In "clinic team" setups, the case history is usually secured by the social worker, and the psychologist concerns himself only with such areas, as school history, that may require further study in view of the obtained psychodiagnostic data.

Secondly, the personal interview is a means of evaluating the subject's attitudes toward himself and his problems. This is a most important procedure since *personal attitudes* rather than objective situational factors frequently are the basic determinants of the "presenting" psychological difficulties. Such attitudes are understood during the psychological examination both from the patient's verbalizations about himself and by the psychologist inferring these attitudes from observation. For example, the person who greets the psychologist in timid, uncertain fashion, who fidgets uneasily in his chair, who intersperses his story frequently with "I know I'm no good" etc., is obviously different from the person who gives a very similar story with relative ease and poise, but who iterates, "Everything would be all right if my wife (husband, brother, sister, father, son) would stop spying on me." Still different is the aggressive, antagonistic person who asserts vigorously, "I'm fine—I'm fine—if you'll just give me something for these headaches." These persons differ not only with respect to the seriousness of the problems they face but also with respect to the manner in which they face their problems. Without insight into basic attitudes any recommendations may be quite unrealistic.

It would be expected that interview technique would vary considerably, both between interviewer and with different persons being interviewed. This is desirable. A skilled interviewer can make the whole process comparatively easy for both the patient and himself. Formal history-taking procedure in which a set of questions or an outline is followed in precise order is seldom necessary. The psychologist must know what information is needed, and he may have an outline in mind, but this information is usually far more easily obtained, and with less disturbance to the patient, if the patient is encouraged to give it in his own way. There is no need for the information to be given in any preconceived order, and the order in which the patient volunteers it may be most revealing of his attitudes toward his problems. The reassurance that he gains in the ready acceptance of his own ideas frequently helps to elicit attitudes and feelings that otherwise he may have felt constrained about expressing. Once such an atmosphere has been established, the psychologist seldom has difficulty in introducing questions he may still need to ask.

It would be wrong, however, to assert that any procedure is correct for every situation. Patients who feel especially ill at ease may not be able to take the initiative in the interview, even with encouragement. They may feel much more secure if at first the psychologist pays little attention directly to them, but produces an outline form and asks questions in routine fashion. Many patients, accustomed to this procedure in medical examinations, will start talking more easily. The psychologist will still need, however, to lead them to expression of their *feelings* about their difficulties, since in evaluating both the nature and the severity of the patient's problems, these are at least as important as the historical information.

DIAGNOSTIC PSYCHOLOGICAL TESTING

THE EVALUATION OF INTELLECTUAL FUNCTION

The choice of specific test procedures in the psychological examination depends on the nature of the "presenting" problem and on the age of the patient. Since some estimate of the patient's intellectual capacities is usually needed, whatever the problem, testing generally begins with either the whole or a part of a standard intelligence test. There is not space within the limits of this section to discuss or even mention all the tests that may be used in different types of cases and for different age levels. Responses to a questionnaire sent by Louttit and Browne to 43 clinics in 1946 yielded a list of 82 different tests in use by 5 per cent or more of the clinics. Only tests that are most frequently used at the various age levels will be mentioned here.

The testing of infants and preschool children requires greater skill in administration than testing at any other age level. Young children are normally active, distractible, and disinclined to stay for more than a few seconds with tasks that are not interesting to them. The testing situation at these ages is one in which the examiner must follow the lead of the child rather than expect the child to adjust to a situation that is rigidly structured. He must be thoroughly adept at handling both the child and the test materials in the easy, relaxed, yet constantly shifting manner that the young child demands. The younger the child, the less likely he is to be unafraid when alone with a strange adult. Even when the child is unafraid, he may refuse to perform the particular tasks that the examiner wishes him to perform, simply because he is at an age when he is beginning to enjoy being a person in his own right. All of these factors require not only special abilities with respect to handling young children but, in many instances, the ability to work with the parent as a collaborator in the test situation.

Tests of infants and preschool children have been developed from extensive studies of the behavior of normal children. If a majority of children of a certain age are able to perform a particular task or have attained a particular stage of development, their ability or development is considered "average" for that age. Yet no one has found an adequate definition of what constitutes "intelligence," and for children of preschool age, what measures intelligence is especially difficult to determine. If early teething and early walking show a high correlation with the early development of speech, as seems to be the case, can we consider that teething and walking are evidences of intelligence? From an inability to answer such questions, except on presumptive grounds, the tests have aimed to sample as many different types of behavior as characterize the normally developing child. The Gesell tests, for example, list the test items under four headings: motor behavior, adaptive behavior, and language and personal-social behavior. The tests for infants most frequently used in the clinic are the Cattell Infant Intelligence Scale and the Kuhlmann Tests of Mental Development, both of which contain a wide diversity of items ranging from the development of early grasping or eye movements to carrying out verbal directions. At preschool levels (approximately ages 2 to 6), the two most popular tests, the Merrill-Palmer and the

Minnesota Pre-School Scale, include items that similarly attempt to cover the whole range of the child's normal activities. The Merrill-Palmer is especially useful since its scoring makes allowance for the negativism and resistance frequently shown at these early ages.

The test results on children below the age of 6, and especially below the age of 3, need to be interpreted with extreme caution. The younger the child, the less likelihood there is that his performance on a test will be accurately predictive of his performance in later years. Only in a very general way can one be sure, on the basis of a single examination, that an intelligence rating at this level measures with any accuracy what the child may be able to do later. If an infant or young child makes an extraordinarily low rating—or an extraordinarily high rating—one can be fairly safe in predicting that in later years he will be lower or higher than the average, but to what extent may remain uncertain. In the largest number of cases—the average and the slightly below or above average—prediction cannot be made with great accuracy. There are numerous reasons for this relatively low predictive value. Among the most important are the rapidity of development in the early years, the unevenness of development of specific functions, the difficulty of determining what constitutes intelligence at these early ages, and the failure to obtain optimal cooperation during the examination. The best method of obtaining a truly adequate appraisal is to repeat the examination after an interval of a few months.

For the school-age child, the Stanford-Binet, an outstanding advance in the field of intelligence testing at the time it was first published (1916), was, and in its 1937 revision remains, the best individual test of intelligence. It nonetheless raised almost as many questions about the nature of intelligence as it sought to answer. It is heavily loaded with items that require proficiency in the use and understanding of language, on the assumption that language ability is highly correlated with "intelligence." While this is undoubtedly true for children who face no specific handicap (such as deafness) in the learning of language, or whose education and environment are stimulating to its use, there remain those who not only have suffered such handicaps but who show their highest skills in other areas. To fill this gap, the "performance" test was introduced as a means of estimating the individual's "intelligence" at performing concrete, manual, nonverbal tasks. In most instances a relatively high correlation is found between these different types of ability, but there are also many instances in which there are differences of anywhere from 20 to 50 I.Q. points. The Arthur Point Scale or the Cornell-Coxe, both tests of performance ability, have therefore come to be widely used as supplements to the Binet, and tests of specific functions such as the Benton Visual Retention Test and the Porteus Mazes are being used increasingly in the examination of older children. At the same time, the Wechsler-Bellevue, which has the virtue of combining both verbal and performance subtests within the same test battery, and which yields both separate and combined scores of verbal and performance ability, has largely supplanted the Binet in the testing of adolescents and adults.

With tests at all levels, however, conclusions to be drawn from the test results are based not so much on the total score as on a careful study of the pattern of test performance. It is assumed, for example, that any individual will vary somewhat in his ability at different types of tasks. The question is always raised, therefore, whether the variation he shows departs from the normal, and to what degree and in what ways. Analysis of these variations has come to be one of the most important phases of test analysis. It is not enough to say that an individual has an I.Q. of 50 or 100 or 150 and that he is therefore defective or average or superior in intelligence. Is the individual of low intelligence defective in all respects, or does he show some special area of ability which is sufficiently adequate to warrant training for an occupation using this ability? If a child of average ability is failing in school, is it because he has a special defect in memory functions in spite of advanced ability in other directions, or is it because he is competing in school with a superior group? It has been found that such variations in test pattern may not only indicate where the problem lies but aid in diagnosing the cause. There is some tendency, for example, for persons who have suffered brain damage to show similar difficulties with certain types of tasks, and for those with severe emotional disturbances to show difficulties in other types of tasks. However, it would not be correct to say yet that we can draw up specific test patterns that *invariably* indicate specific personality disturbances. In our present state of knowledge, it is still important (and there is little indication that it will ever cease to be) that the clinician base much of his analysis on careful observation of the patient, as to both his method of responding to test items and his general behavior in the examination situation.

THE EVALUATION OF SPECIFIC ASPECTS OF INTELLECTUAL FUNCTION

It has already been indicated that the purpose of diagnostic psychological testing is not a unitary, global appraisal but an analytic assessment of intellectual assets and liabilities. This type of assessment is necessary not only because it yields data that are more meaningful clinically but because of the essential nature of the intellectual impairment associated with cerebral injury or disease and profound emotional disturbance. It has been found that this type of acquired impairment is not a simple lowering of level of performance in all aspects of mental functioning but that certain intellectual functions, such as abstract reasoning ability and retentive capacity, show marked sensitivity to these impairing factors while other functions, such as vocabulary level and range of information, show less. For this reason test procedures deliberately designed to assess specific intellectual functions have been constructed with the aim of bringing into prominence any specific defects that may exist and that may not have been detected by the usual clinical methods. Among these specific test procedures may be mentioned the Shipley-Hartford Scale, the Goldstein-Scheerer tests, the Benton Visual Retention Test, and the series of tests found in the handbook of Wells and Ruesch.

EDUCATIONAL TESTING IN THE CLINIC

Since educational tests are discussed in other sections of this column, it is necessary here to mention only how they may be used as part of the psychological examination in the clinic. Tests of school achievement are often given in the clinic to every school-age child. Children are referred for examination specifically because of school failure, and it is necessary to know how seriously and in what areas they are failing. But difficulty with school work is frequently one of the ways in which children reveal emotional problems in other areas. Timid, frightened children who are fearful of showing openly their hostility toward a threatening environment may unconsciously express it through a failure that punishes those who threaten them as well as themselves. Children whose parents overemphasize achievement in any direction may fail in school as a means of protecting themselves from this undue pressure. Children who have got off to a bad start in school, perhaps because of initial difficulties in adjustment to a new situation, because of frequent moves from one school to another, because of educational methods unsuited to their particular needs, or because of special disabilities, especially in reading, need only this bad start to arouse a feeling of failure that increases their difficulty in learning. Even a high level of success in school may reveal emotional difficulties in children who, feeling themselves successful in this alone, devote all of their emotional energy to it. Whatever the "presenting" problem in any particular case, school is an important part of the life of any school-age child, and the child's adjustment to it requires investigation as much as any other area. Usual practice consists of the administration of all or parts of a general school achievement test, such as the Stanford Achievement or Wide Range Achievement, in addition to such tests as the Gates or Monroe Reading Diagnostic tests if this has not been done by the school or other special services in the community.

VOCATIONAL TESTING IN THE CLINIC

Appraising vocational aptitudes and interests, although not a primary function of the clinical psychologist, is nonetheless indicated in some cases of job failure or of school failure in the higher grades. Although inability to succeed on a job may well be more closely related to personality difficulties than to lack of ability as such, it would be futile to look to a remaking of personality as a solution if a shift to other work yielding greater satisfaction might accomplish the same ends. In the case of the high school boy or girl of dull average or low average intelligence who merely "gets by" in the elementary grades, his failure is frequently evidence that he has reached his limit of academic achievement, though further school attendance may be legally required. His poor record may be due to nothing more than a relatively healthy rebellion against frustration. In any event, for such persons investigation in this area may well be indicated as part of the psychological examination.

PROCEDURE IN DIAGNOSTIC TESTING

The dissatisfactions that led to a thorough analysis of test patterns and to the use of a more adequate testing program were accompanied by a questioning of the value of rigid test procedures for obtaining clinical information. In general, one would say that a test should always be administered and scored strictly according to the instructions in the book. In practice this does not always work out, especially when one is dealing with disturbed adults or children. They are frequently unable to respond in expected ways but may respond much more adequately

if procedures are adjusted to their particular needs. The question is whether the aim of a tester, in a clinical situation, is that of administering an accurate test in strict accordance with the directions in every particular, or of finding out what the individual can do with the various test items under optimal conditions. There is much which the instructions do not or cannot determine as to procedure, since the psychologist is not dealing with a carefully standardized subject or necessarily even with a normal subject. Whether procedures should go strictly according to rules becomes in part academic, since there are no rules as to how the patient will respond. The question then becomes not whether one varies the procedure, but how far one may depart from standard test administration without sacrificing the validity of the test. With regard to the Stanford-Binet, some attempt has been made to subject this question to research. Present evidence would suggest that for the normal person about the same results are obtained whether the test is given rigidly or whether procedures are adjusted to the momentary fluctuations in interest and attention of the subject. Disturbed persons, however, do somewhat better if these adaptations are made. It becomes necessary, then, for the psychologist to be so familiar with the test and how it is used that he knows what adaptations he may safely make.

THE EVALUATION OF PERSONALITY

There is as yet considerable disagreement as to what constitutes an adequate personality test. The term "personality" is in an even more amorphous, ill-defined state than is the term "intelligence." Attempts to define it, and thereby to test it, in pure behavioral and quantitative terms have been largely unsatisfactory because of their failure to take into account the drives and motivations underlying the behavior.

On the other hand, attempts to define and test personality in such a way as to include drives and motivations have usually been more fruitful, but psychologists are still forced to rely to a large extent on qualitative analysis and hence on the skill and knowledge of the examiner. In a very general way, the first of these two types of tests may be referred to as "objective," as distinguished from the second type, the projective tests. On the whole, objective personality tests do not enjoy extensive use in the clinic today, largely because they have not proved to be of value in this situation. Mention should be made, however, of the single exception to this rule, the Minnesota Multiphasic Personality Inventory, which is widely used (and misused). Critical investigation has indicated that in the hands of a sophisticated clinical psychologist the Inventory can be an extremely valuable diagnostic instrument. In the hands of a naïve examiner who accepts the test scores at face value, the Inventory can lead to serious diagnostic errors.

In projective tests the individual theoretically projects into the situation his own feelings, attitudes, and drives, while the situation is structured only as much as is necessary to provide some systematic means of recording and analyzing his responses. Thus the TAT (Thematic Apperception Test) and the Rorschach set-up certain rules of procedure both for administration and scoring but are primarily designed to elicit a wide range of free associative material. The TAT, which uses a set of pictures of varied content, assumes that any individual's stories in response to these pictures tell something about his fundamental strivings and modes of adjustment. Thus a patient who consistently sees in the pictures stories of people overwhelmed with troubles that lead to disaster presumably himself feels overwhelmed with troubles from which he fears a disastrous outcome. Or the patient who sees in a majority of the pictures figures of inordinate power and wealth presumably has an exceptional need for such a feeling of power. Although these are oversimplified examples, they indicate how rich, qualitatively, such a test may be in providing information over and above what may be obtained from the quantitative scoring.

The Rorschach as a diagnostic tool is still in much the same stage as the TAT. Both tests provide a great deal of valuable information about the patient; both are still in the research stage with regard to quantitative scoring methods. The Rorschach, based as it is on ink blots instead of pictures, presents even less structuring of the test situation. Interpretation is based not only on the content of what is seen in the blots but on such factors as the use of form, movement, color, shading, and on what these suggest with regard to inner strivings. An overly compulsive individual, for example, not only may have a very high percentage of good form responses but is likely to carry this to an extreme in giving only those responses which he can see as perfect in every detail. The individual who fails to accept and adjust to the world around him may give more than the expected number of unique or "original" responses. Again this is an oversimplification, since interpretation of Rorschach responses is never made on the basis of

one characteristic alone but on a careful study of all responses.

Both the Rorschach and the TAT have proved thus far most useful with adolescents and adults than children. At younger ages, the process of development is still proceeding so rapidly that it is not always possible to distinguish on such tests between what is true deviation from the normal and what is merely a stage in the developmental process. For the earlier years of childhood, therefore, a projective technique known as "play diagnosis" has come into use. This can hardly be called a "test" technique as such, since no attempt has been made to standardize any aspect of the procedure. For this reason it might fall more logically under the heading of clinical observation. Nonetheless, observations made during play therapy and the results of David Levy's and others' experiments with doll play suggest this method as a fruitful means of understanding the younger child. It follows the same assumption as do other projective techniques: that into his play or into any other type of creative activity the child projects his innermost needs and strivings, and that from his behavior in such play one may infer his particular needs and anxieties.

EVALUATION AND PRESENTATION OF DATA

The form, and in many cases the content, of the results of the psychological examination are determined by the organization and needs of the particular clinic. In some clinics all cases are seen by the psychiatrist, the psychologist, the social worker, and perhaps a nonpsychiatric physician. In such a situation, the psychological data are presented as a supplement to the data from other sources and are coordinated with the other data in a staff conference in arriving at a final diagnosis.

In spite of rather wide variations in the form, style, content, and method of presentation of psychological data, there are still general rules that determine the best procedure. Whether the report is given orally or in writing, it is always well to remember that physicians, social workers, teachers, and parents are not very familiar with psychological terms. If it is necessary to use technical, scientific terms in order to avoid inaccuracies, the terms must be made clear to the person receiving the report. At the same time, diagnostic or interpretative statements must always be qualified and should not extend beyond the established implications of the particular procedures used.

The content of the report should include: 1) a description of the patient's behavior during the psychological examinations; 2) a description and analysis of the test results; 3) a summation and evaluation of all of the material obtained during the examination; and 4) recommendations for the action to be taken. This last is especially important. The best possible diagnosis is of little value unless it leads to practical and workable recommendations for treatment.

READING REFERENCES

Benton, A. L., and I. L. Howell, "The Use of Psychological Tests in the Evaluation of Intellectual Function Following Head Injury." *Psychosomatic Medicine,* 1941, 3, 138-151.

Frank, L. K., "Projective Methods for the Study of Personality." *Journal of Psychology,* 1939, 8, 389–413.

Louttit, C. M., *Clinical Psychology of Children's Behavior Problems* (2nd ed.). New York: Harper & Brothers, 1947.

Richards, T. W., *Modern Clinical Psychology.* New York: McGraw Hill Book Company, Inc., 1946.

Stoddard, G. D., *The Meaning of Intelligence.* New York: The Macmillan Company, 1943.

72. THERAPEUTIC TECHNIQUES

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BODY VS. MIND

In every-day conversation it is common to speak of the body and the mind as if they were separate, relatively independent entities. Prevailing scientific and professional theory on the other hand regards it as profitless to conceive of them in such a way. Instead, the mind is conceived as the sum total of processes which serve to integrate the manifold functioning of the parts composing the individual organism and to relate its functioning to the environment in which it lives. The mind has no existence apart from the body. It is merely a word used to designate certain of the more complex functionings of the body as a whole; nor should it be thought of as merely the activity of the brain or nervous system.

It is important to understand this definition of the mind because it is basic to the consideration of therapeutic techniques. The one-time sharp contrast between mental and physical illness is fading in the light of this present-day approach. It is a commonplace that the treatment of the so-called bodily ailments with drugs and other material things affects mental functioning and, vice-versa, that nonmaterial therapy aimed at the mind has important repercussions on bodily sickness and health.

In many contexts a distinction is made between mental and physical, but this should be interpreted as a convenient, short way of distinguishing from among the manifold bodily processes, those which are more exactly describable in physical and physiological terms and which generally involve restricted parts or organic systems (physical) from those which are a function of the body as a whole (mental). Even so, the distinction, for convenience, between physical and mental may be dangerously misleading unless one keeps its basis firmly in mind.

NORMALITY

The essential unity of mind and body should not be forgotten when considering the meaning of such terms as adjustment, normal behavior, and mental abnormality. These are value concepts so their meanings are a function of the judgment of those who employ the terms. That is to say behavior that is labelled normal or good adjustment depends on the personal backgrounds, attitudes, affects, and judgments of the persons constituting the group in which the behavior occurs or is evaluated. What is considered normal or good in one group may not be so considered in another. At present it is not possible to define the terms *objectively* and *scientifically*. Generally when people talk about normality and good adjustment, they are referring to behavior of which they approve; toward which they feel kindly and sympathetic, and which they understand. Psychologists, psychiatrists, social workers, and all those whose profession is dealing with people whose behavior is regarded by their fellows as annoying, unacceptable, queer, abnormal, or dangerous have reached a degree of agreement as to what constitutes maladjustment and abnormality. Their views are contained in publications on psychiatry and abnormal psychology and are of major importance in determining the definition and treatment of abnormality. What they agree upon, however, cannot be regarded as necessarily representative of people in general and is known to be at variance with the views of another important and much larger professional group engaged in modifying human behavior, i.e., elementary school teachers. In 1928 Wickman published the results of surveying 511 elementary school teachers and 30 psychologists with respect to their judgments concerning the seriousness of various

kinds of pupil behavior. The results indicated marked discrepancies between the two, the teachers considering aggressive behavior such as so-called sex offenses, stealing, lying, and offenses against teacher and school authority most serious while the psychologists regarded defensive, withdrawing behavior, such as unsocialness, suspiciousness, unhappiness, resentfulness, etc., as most serious.

Despite the differences in point of view there is substantial agreement that in many types of abnormality and maladjustment the affective or emotional aspects of the subject's behavior are relatively intensified, diminished, or displaced in comparison to the behavior ordinarily characteristic of him. It is generally supposed also that the subject's behavior is a consequence of severe conflicts and frustrations of which he is usually unaware, and which he has been unable to resolve. His behavior may typify ineffective ways of seeking desired ends, or the goals and aspirations themselves may be unsuited to his capacities and life situation and so be productive of maladjustment.

DEFINITION OF MALADJUSTMENT

However, for the purpose of discussing therapeutic techniques the following resume of the concept of adjustment is intended to apply. To the extent that the individual's long-range behavior is such as to satisfy his basic physiological needs; learned personal desires for social, economic, and general cultural status; and the over-all pattern of interrelated objectives characteristic of man; without sacrificing any of major importance and without preventing similar behavior on the part of his fellow-men, except in accordance with prevailing culture patterns, he is said to be well adjusted.

LOCUS OF MALADJUSTMENT OR ABNORMALITY

It should be clearly understood that while common parlance implies that John Jones or Mary Smith is abnormal or maladjusted, a more accurate statement would make this fact explicit: the abnormality or maladjustment is really a product of interrelationship among the various individuals or groups of individuals in a particular cultural milieu, and hence the locus of the maladjustment may not be in any one individual in the group.

This truth is reflected in the fact that programs for remediation of abnormalities or maladjustments often are directed both toward effecting changes in the allegedly maladjusted individual and toward accomplishment of modifications of the attitudes, judgments, beliefs, and behavior of his associates in the groups of which he may be a member.

NATURE AND OBJECTIVES OF THERAPY

THERAPY BASED ON ANALYSIS NOT SYMPTOMS

From the foregoing discussion it seems appropriate to regard therapeutic techniques as any methods employed to effect modifications in the characteristic functioning and behavior of one or more persons of a group in a given cultural setting so that the behavior provides more complete and lasting satisfaction of their major needs and desires without deteriorating and possibly enhancing their relationships with their fellows. It does not follow that therapeutic techniques do or should directly attack the particular behavior complained of in an allegedly maladjusted person by his associates or even by himself. It is a truism that the therapist must look behind the symptoms or the complaint of the patient or his associates to determine what kind of therapy should be applied and to whom. A specific example of this is provided by the not uncommon situation encountered when parents have a child of less than average mentality upon whom they exert extreme pressure to behave in ways beyond his capacity, e.g., to qualify for college attendance. The main therapeutic effort is directed at the parents, not at the child. Such a case might first be attacked by direct methods. An explanation would be made to the parents of the mental status of the child, backed, if necessary, by mental test results. The unreality of their expectations in relation to their child's capacities would be explained in detail. The fact that maladjustive behavior often has its origins in continued frustration of the individual's efforts to attain desired objectives would be set forth in detail in relation to the behavior complained of in their child.

In some cases this would be sufficient, but in others the extreme pressure put on the child despite persistent honest effort and failure on his part and the parents' unwillingness to accept the explanation given, might indicate the need for more intensive study of the parents to determine what parental frustrations are responsible for their behavior. The latter aspect of this case exemplifies the importance of an open-minded, careful, and objective analysis, not only of the behavior complained of in the statement of reasons for referral to the therapist, but of the possibly relevant behavior of all of those in close association with the person complained of.

MODERN THERAPY ECLECTIC; BUT STRESSES LEARNING

Most therapists of the present-day tend to eclecticism and accept the doctrine of multiple causation. While admitting the importance of conflicts of a sexual nature emphasized by Freud's psychoanalysis, the importance of feelings of inferiority and overcompensation for them as stressed by Adler is admitted. Every man wants one or more bases for self-esteem, and failure to possess or recognize them in oneself is a major cause of frustration and defensive behavior. The extreme importance of learning in relation to the development and treatment of maladjustment is increasingly appreciated. It is recognized that life situations involving learning by conditioning or by trial and error may lead to the acquisition of behavior which is inadequate to satisfy the drives prompting it without interfering with the satisfaction of other basic drives of the particular individual or his associates. By similar processes learned motives may be acquired which require behavior for their satisfaction at variance with achievement of fundamental goals. Or it may happen that behavior learned in, and adequate to one situation is set off by stimuli in another to which it is not an adequate response. So-called neurotic behavior, for example, battle fatigue, is of this type. The soldier under battle conditions experiences strong emotions and learns to dive for shelter at the approach of planes or bursting shells. Similar noises may persist in setting off the same behavior in nonbattle settings long afterward, particularly if emotional disorganization as a result of unconscious conflict interferes with extinction of such responses. That techniques for facilitating learning and unlearning play a central role in therapy is therefore readily understandable.

ALL THERAPIES EFFECT "CURES"

In view of the nature and locus of maladjustment, it is not surprising that all therapies, regardless of their apparent scientific rationale or lack thereof, effect "cures" or modification of behavior in desired directions. This is a fundamental which must never be forgotten. It means that citation of the cures effected by a given therapy cannot be accepted, in the absence of other evidence, as proof of the theory of behavior and its modification said to be basic to the particular therapy.

CLASSIFICATION OF THERAPEUTIC TECHNIQUES

Therapeutic techniques may be differentiated according to whether they are medical, psychological, or environmental. They may be dichotomized as individual or group techniques; institutional or non-institutional. The particular techniques used, the manner of their employment and the modifications made in them will vary depending on whether they are applied in or outside an institution to one or a group of persons.

BASIC PHILOSOPHY OF THERAPY

In general the underlying philosophy of all techniques is: to aid individuals in arriving at a description of their behavior and its probable causes which is acceptable to them and to the therapist; to provide appropriate stimulation in a setting which will lead to their learning of new modes of behavior as substitutes for those contributing to the maladjustment; to carry both of the foregoing as rapidly as possible to the point where the subjects are judged able to proceed independent of the therapeutic agency.

MEDICAL THERAPY

By medical therapeutic techniques are meant those involving the use of medicine and surgery to aid the body in correcting abnormal physiological states. Such states are known to contribute to maladjustment but appear not to be involved in many instances where severe maladjustment is alleged. In cases of severe mental abnormality such techniques are employed to complement and facilitate psychological and environmental therapeutic techniques. As stated earlier, no attempt will be made here to discuss the purely medical techniques addressed to organic illness. Interested readers are referred to the medical literature.

PSYCHOLOGICAL TECHNIQUES OF THERAPY

Ordinarily, medical therapeutic techniques are applied only to the allegedly maladjusted person and not to others sharing his life situation. They assume that the cause of the maladjustment is inside the person who is tagged as maladjusted or that his organic condition is a major factor contributing to the maladjustment. Psychological therapy on the other hand may be, and frequently is applied to not only the central figure of the complaint which warranted corrective action, but also to one or more of those who share his life situation, e.g., parents, siblings, school teacher, employer, friends. In cases of child adjustment difficulties, for example, it is frequently true that the most effective therapy is that directed at the behavior of the parents.

The hypothetical case cited earlier is an example. It is appropriate at this point to reiterate the first principle of therapy which it illustrates: Never accept automatically the stated cause of referral as the basic difficulty at which therapy should be directed. The therapist must first determine what desires of the person involved are not being adequately satisfied and having determined them, employ the most appropriate and effective techniques to develop an awareness and acceptance of them among those involved. Awareness and acceptance are necessary preparations for learning effective behavior for the satisfaction of desires or for recognizing the necessity of modifying or abandoning them.

EXPLANATION

The most direct technique of effecting such changes is the method of explanation in which the therapist's evaluation of the problem and its causes is verbalized directly. It has the advantage of economy of time if it works. Unfortunately, it is not effective in many situations because conflicting and sometimes irreconciliable objectives exist within the individual. This sort of conflict, which no possible course of action can resolve, gives rise to persistent emotional and affective states which seriously interfere with or completely prevent understanding or acceptance of an objective appraisal of the difficulty. Because of the central importance of having the subject attain such understanding and acceptance of the sources of maladjustment, and in order that effective retraining of habitual behavior patterns may be instituted, several methods for attaining this end are employed.

PSYCHOANALYSIS

This method, suitable for treatment of individuals only, assumes that the maladjustive behavior results from childhood maldevelopment of the structure and dynamics of "the unconscious" which may be gradually uncovered and corrected over a long period of time (months or years) in the course of which the subject falls in love with the analyst. This emotional attachment to the analyst is known as *transference* and is gradually dissolved in the later stages of therapy to make the subject free and independent of the analyst and able to adjust unaided. Assuming the key importance of sex and love in both their restrictive and broad meanings, the method stresses *free association, dream analysis,* and *interpretation.* Free association occurs in the course of repeated therapeutic sessions during which the subject is encouraged by every means to relax and express whatever comes to mind without reservation and regardless of how unconventional, bizarre, or trivial it may seem. He tells also in minutest detail of the dreams he has. During many sessions the subject is encouraged to talk ever more freely. The analyst interprets what he hears in terms of complex psychoanalytical theory. The meaning in terms of the theory of all that the subject has expressed during free association and in dreams gradually evolves in the analysts' mind and he arrives at explanations of the childhood sources of the maladjustment which are given to the patient by interpreting his dreams and free associations. When the subject accepts the analyst's interpretations he is presumed to have gained normal adult development and be well on the road to adequate adjustment.

The psychoanalytic theory is generally recognized to contain important elements of truth, but its concepts expressed in its peculiar vocabulary are generally either reinterpreted or unaccepted in scientific circles. Because of the long duration of the therapy and its individual character it is extremely expensive and therefore relatively unavailable. On the other hand it may be argued that the value of the method stems from its continuance over a long period during which new attitudes and habits may be acquired.

CATHARSIS

Closely related to the technique of free association is that of catharsis in which the subject is encouraged to talk about his problems, verbalize his fears and worries, and in other ways release the tensions and emotions arising from the conflicts and frustrations presumed to underlie his condition. The therapist's role is to encourage such expression and develop confidence in himself by accepting what he hears without display of emotion or criticism, merely interposing occasional questions to aid the subject in expressing and objectifying his feelings and attitudes. This method is frequently employed in obtaining the detailed account of the maladjustment which occasions referral and may be employed with each of the persons involved, at least until the therapist has established clearly what are the basic elements of the maladjustment picture. Catharsis has a double value in that it conveys much information to the therapist at the same time that it serves to facilitate the subject's attainment of a less emotional view of his problems through desensitization. For it is

characteristic of the method that emotion diminishes and understanding increases as the subject tells and retells past events, and his thoughts, fears, and worries. The value of the religious confessional is thought to derive in no small measure from its cathartic aspect. Catharsis also plays the major role in the nondirective therapy popularized by C. R. Rogers.

From the relatively passive role which the therapist plays in catharsis he may gradually progress to the use of interpretation and explanation to hasten the subject's insight into the probable motives of his behavior and the development of more adequate and acceptable ways of satisfying them. This is made possible because the repeated expression of thoughts and events having strong emotional cores results in weakening their power to disorganize intellectual processes. Concurrently there is increasing receptivity to guidance directed toward development of insight and ultimately more adequate behavior which enables satisfaction of the individual's desires within the social context of his life.

HYPNOSIS AND SUGGESTION

The determination of the basic factors in maladjustment, internal to the individual, is sometimes aided by hypnosis while suggestion is frequently employed both during trance and waking states to hasten the subject's awareness of causes. There are various explanations as to the nature of hypnosis. Perhaps the most widely accepted is that it is a state of heightened suggestibility. To the extent that this is true, hypnosis may be effective in therapy directed at establishing new response patterns through suggestion. Contrariwise as an aid to analysis it presents the danger that the hypnotist may unwittingly suggest new causative factors not already contributing to the maladjustment. While there are those who strongly favor the therapeutic use of hypnosis and posthypnotic suggestion, many others prefer the technique of narcohypnosis.

NARCOHYPNOSIS

In recent years a number of drugs (various barbiturates) have been found which greatly facilitate the emergence of the unconscious material basic to the maladjustment. The technique has been used extensively in the treatment of war neuroses or battle fatigue. Administration of the drug in proper quantity results in a narcohypnotic state during which the subject relives the stressful situations which precipitated his neurotic manifestations. Through repetition of these experiences under conditions controlled by the psychiatrist, the fear reactions suffer extinction. The mechanism is analogous to *experimental extinction* of the conditioned reflex when the adequate stimulus repeatedly fails to accompany the conditioned stimulus. In this method, which is more commonly used with hospital residents, and in fact in all methods of institutional therapy, rest, relaxation, a well balanced diet, occupational therapy, and physiotherapy are employed as supportive treatment. This practice is, of course, based on the ultimate oneness of mind and body.

The peculiar value of narcohypnosis is its effect in initiating cathartic expression of past emotionally charged experiences without the risk incurred in hypnosis, that the therapist will project into the subject what is not already there. The processes of extinction, interpretation, explanation, acceptance, and reeducation follow one another to result in the substitution of adaptive for maladaptive behavior. The therapist's task is comparable to that of the teacher in that he is a catalyst in the process of reeducation once the affective elements are recognized and controlled by the subject. The therapist aids him in acquiring insight and in substituting new modes of behavior for those which are inadequate or unsatisfactory to himself or others. It goes without saying that as in any learning situation *the subject must himself desire to acquire the new modes of behavior.* This is a fundamental of therapeutics which may easily escape notice, and if it does, expectations for amelioration of the complaint will not be realized. In many cases therapy fails because there is no real desire on the part of the subject to effect changes in his characteristic response patterns. Such aid is effected, not only through the techniques already made explicit, but also by the techniques of play therapy and the psychodrama.

PLAY THERAPY

Play therapy, best adapted to children, is used to establish rapport, as an analytic, diagnostic method and as a therapeutic medium. It consists of observing and conversing with the child while he plays with dolls or puppets in playhouses and a play environment which lend themselves to expression (verbal and/or nonverbal) by the child of the attitudes, emotions, and habitual responses characteristic of him. The method evidently has important cathartic value and may be employed by the therapist to effect modifications of the child's play behavior

through suggestion or other appropriate techniques. Ultimately his real life functioning is affected.

THE PSYCHODRAMA

With older children and adults, controlled dramatics is employed in parallel fashion. The technique of the psychodrama affords subjects an opportunity to express in a make-believe situation, emotions, attitudes, and other behavior which they are unable or less able to do in their real life. The plays which are acted are selected or written with the backgrounds and adjustment problems of the actors, so far as they are known to the therapist, as the focus of interest.

SHOCK THERAPIES

All of the therapeutic techniques described thus far may be employed either with individuals living in their usual settings, or in the institutional or hospital setting. There are other therapies which are more typical of institutional treatment. Therapies having in common the inducing of severe body shock via electrical or chemical (metrazol, insulin) techniques have had wide application to the more severe mental abnormalities in hospitals during the past several years. Aside from direct organic effects of the shock inducer the technique frequently renders the subject accessible to one or more of the therapeutic approaches already described.

GROUP THERAPY

The technique of conducting group sessions having both general and specific therapeutic value was developed and used prior to World War II with patients referred to the neuropsychiatric outpatient clinics of various hospitals. It only remained for World War II to provide the pressure of vast numbers of subjects requiring positive treatment which led to its adaptation and widespread use particularly with military personnel. Insofar as possible the technique is employed with groups whose background conditioning experiences and maladjustive behavior are grossly similar. So-called organic cases are excluded. The therapeutic sessions are run as discussion groups in which explanation is given of the mechanisms by which intense prolonged emotional experiences such as fear, sorrow, frustration, anger, guilt are accompanied by bodily changes which may be manifested in continued feelings of anxiety, fatigue, inadequacy, and other neurotic behavior. The mechanisms of the conditioned reflex and of learning are discussed as are the principal psychodynamics of maladjustment. The relation of muscle tension to the reactivity of the central nervous system is explained and progressive relaxation practiced. Movies of the artificial production of neuroses in animals by frustration are sometimes used. Gradually pictures and accompanying sounds are introduced which tend to evoke battlefield responses. In the protected situation of the controlled discussion group the subjects are deconditioned; their maladjustive behavior suffers extinction; they become "toughened." They use the opportunity for verbal catharsis. They learn how similar are their thoughts, feelings, and problems to those of the other group members, and are thus able to accept them without disorganizing emotion.

It should be clear from this brief outline that group therapy is complemented with individual techniques; but it has a unique social value not possessed by individual methods. In addition it is more economical of time and effort, and therefore enables active treatment of many more than is practicable by nongroup methods.

ENVIRONMENTAL THERAPEUTIC TECHNIQUES

The classification of nonmedical therapeutic techniques into psychological and environmental, like all classification, is somewhat arbitrary and should not be regarded as indicating two mutually exclusive categories. Psychological therapy applied to a child's parents can be considered as environmental therapy insofar as it effects important changes in two of the major elements of the child's environment. Environmental therapy is a term used to refer to efforts at facilitating adjustment which are directed at factors outside the person who is the central figure of the complaint. The most radical environmental therapy is that which removes the subject from the physical and social environment in which he lived at the time of referral. This is not uncommon technique in the handling of severe maladjustments in children whose difficulties appear to be an outgrowth of their home life. Usually a change of school, playmates, and extrahome contacts is involved, the child being placed in a foster home. The foster home is chosen to provide a general cultural, economic, and religious setting not too difficult from what the child has previously known. The main point of difference sought is in the foster parents. They will be selected for stability, personal and social adjustment, favorable, healthy attitudes toward children, and desire to have them as part of their life. Severe

mental abnormalities or maladjustment (criminality) are frequently treated by radical environmental change through institutionalization.

The principal virtue of the radical change in environment is that it removes the subject from the stimuli which have evoked his inadequate, unsatisfactory behavior, and requires the development of new response patterns to the people and things of the new environment. Under such circumstances much learning of new behavior is inevitable. If accompanied by wise guidance and therapeutic supervision the new learning will be more adequate to satisfy the basic needs of both the subject and his associates.

The same values exist in lesser degree when environmental change is less radical, less permanent. The summer camp, the vacation trip, change of scene, shift of school, teacher, school grade, job; the joining of social and athletic organizations, development of hobbies, and so on, afford similar opportunities for the development of new and more adequate, more satisfying response patterns which gradually may carry over to the unchanged environmental elements of the subject's life.

It is important, however, that such changes be accompanied so far as feasible by wise, frequent, and continued guidance from the therapist and/or other well adjusted, understanding, and sympathetic persons instructed by him. Change of environment through placement in the institutional life of a boarding school, institution for maladjusted, delinquent or criminal has serious limitations, and is employed only where other expedients appear impossible. This is because the conditions of life in such institutions are different from those in extramural every-day life situations. While new behavior patterns may be developed which enable adjustment in the institutions, they frequently do not provide a desirable nexus of behavioral modes to facilitate adjustment when noninstitutional life is resumed.

The least radical and most frequently used environmental therapy is that aimed at changing limited aspects of the subject's physical, social, educational, vocational, and cultural environment.

PREVENTIVE THERAPY

Undoubtedly, the most important and effective therapy is preventive. It seeks, by whatever methods seem most likely to succeed, to make every person feel secure because he is aware of all that he can do and contribute to the satisfaction of his own and his fellows basic needs while recognizing and accepting his limitations. Therapists believe that the individual who is oriented to his life situations to the extent that his capacities permit, who feels that he is participating in and making significant contributions to activities in which he is interested, who experiences both individual responsibility and freedom to attain a reasonable proportion of his personal goals is likely to be well adjusted. In the broadest sense therefore, the philosophy of therapy is concerned with the scientific, social, economic, and political problems which arise as man seeks to approximate ever more closely the goal of a more satisfying life for all the members of his kind. It is not within the scope of this chapter, however, to do more than suggest the significance for preventive therapy of the manifold political, social, legal, and economic problems which influence individual adjustment.

READING REFERENCES

Appel, K. E., "Psychiatric Therapy," in J. McV. Hunt (ed.), *Personality and the Behavior Disorders.* New York: The Ronald Press Company, 1944, pp. 1107–1163.

Benedict, R., "Anthropology and the Abnormal." *Journal of General Psychology,* 1934, **10,** 59–82.

Freud, S., *A General Introduction to Psychoanalysis.* New York: Liveright Publishing Corporation, 1935.

Guthrie, E. R., *The Psychology of Human Conflict.* New York: Harper & Brothers, 1938.

Kanner, Leo, *Child Psychiatry.* Springfield, Ill.: Charles C. Thomas, Publisher, 1935.

Shaffer, L. F., *The Psychology of Adjustment.* Boston: Houghton Mifflin Company, 1936.

73. READING DIFFICULTIES

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In America schools are predominately reading schools. A student who has a reading disability is handicapped in getting an education. This fact will be reflected in the quality of his daily class work and also in the scope of his general reading. It may be assumed that the student who finds reading a laborious task will not indulge in much reading beyond the basic requirements of his courses of study. It may also be assumed that if this condition persists in adult life it will impose severe limits upon the amount of reading engaged in for cultural and recreational purposes. Moreover, reading deficiencies may lead to undesirable psychological consequences as the student compares himself unfavorably with his fellows who read easily and well. Reading has far-reaching educational, social, and economic implications. For this reason psychologists have made an extensive study of the reading process and the factors influencing the growth and development of this important skill.

NATURE AND EXTENT OF READING DISABILITIES

The number of poor readers in the upper grades, the high school, and the college is large and since research has shown that most of these cases can be materially helped by special instructional and clinical procedures we may conclude that there is need at all levels of instruction of forthright work on reading problems. The average rate of reading of the average college freshman is about 250 words per minute, with a standard deviation of about 50 words per minute. Assuming the distribution to be normal (the evidence is that it is somewhat skewed to the right) this gives the following distribution by percentiles:

Rate	100	150	200	250	300	350	400
Percentile	0.14	2	16	50	84	98	99.84

Differences in comprehension are not so readily shown in a distribution of this kind, but it is agreed that they are enormous, varying all the way from a virtual absence of understanding to almost complete mastery.

The plight of the slow reader is particularly bad because of the fact that the quality of his reading is not any better than that of the fast reader. Thus he may be in a position of requiring two, three, or even four times as long to execute a reading task as a fast reader. In fact, he may not even read quite so well as the fast reader. Psychologists once maintained that fast readers are decidedly better than slow readers. It now appears that they had overlooked the fact that most comprehension tests are timed and that the comprehension score thus reflects rate of reading also (Stroud and Henderson, 1943; Stroud, 1942).

CORRECTING READING DIFFICULTIES

It has been found to be relatively easy to bring about a marked improvement in rate of reading by special training procedures. In comparison with comprehension, rate of reading is a fairly narrow skill. Comprehension does not yield so quickly, nor perhaps so readily, to special training techniques as does rate. At least psychologists have not as yet discovered techniques for accomplishing this end so readily. It is very significant that research workers have gen-

erally found that improvement in rate, achieved by training in rate alone, is accomplished without loss in comprehension. It has sometimes been reported that a training program designed to improve rate alone also, it successful in improving rate, results in a gain in comprehension. In other words, the impression has sometimes been given that improvement in comprehension is one of the consequences of improvement in rate. Again this appears to be a result of the fact that rate is implicated in most comprehension scores by reason of the fact that the reader works against time (Buswell, 1939).

A reading clinician should not be content with a gain in rate alone when the need of training in comprehension is indicated. Even so, he does the student a real service if he makes it easier for him to read at the same level of comprehension. If a student can read 50 pages in one hour with the same degree of understanding that formerly resulted when he required two hours to read 50 pages, he has been helped.

READING AND EDUCATIONAL DEVELOPMENT

Some of the difficulties that stand in the way of understanding what one reads are not merely difficulties specific to reading, but are general in that they stand in the way of understanding what one hears or sees or thinks about. In reading, he may not know what the words mean; he may be so deficient in background that he lacks the information required for understanding; his ability to think may be limited, and so on, all of which may limit his ability to understand when he listens or looks or tries to think. These conditions may account for the fact that deficiencies in reading comprehension have been more difficult to correct than deficiencies in rate. By the same token it may be said that a substantial improvement in rate may become one of the means of improving comprehension. It has not proved difficult to double the rate of groups of slow readers. If, as a result of their becoming facile readers, they read more—especially if under guidance they come to read widely and wisely—they should add to their background of experience, and thus ultimately become capable of reading with greater understanding.

We cannot emphasize too strongly the idea that good reading ability is not achieved by reading instruction alone. It is a function of the whole educational development of the student. We do not make a good reader out of him merely by teaching reading. Practically everything he learns—knowledge, concepts, frames of references, logic of language, habits of thought, and the like—contributes to his ability to read. Even so, thousands of students do not develop satisfactory reading ability. Reading should be considered a part of the total educational development. Training in history, geography, the sciences, literature, arithmetic, and other subjects contributes to the pupil's ability to read. But it is just as true that training in reading contributes to the pupil's development in these subject matter areas. A pupil with good reading habits is at an advantage. Many pupils have acquired such poor reading habits or are otherwise so limited in reading ability as to put them at a decided disadvantage. Some pupils have specific disabilities sufficiently serious to interfere with reading progress; others, and the larger number, are limited by more general factors, such as low intelligence and/or inferior education (Gray, 1940; Olson, 1940).

FACTORS ASSOCIATED WITH READING DIFFICULTIES

DEFICIENCIES IN INTELLIGENCE

It was suggested twenty five years ago that "among unselected children backwardness in reading . . . will probably be more frequently associated with low general mental ability than with any other single cause" (Gates, 1922). This statement is entirely endorsable today. Pupils of low intelligence are limited in powers of understanding. Moreover, such pupils are retarded in educational development—a condition that also limits their ability to read. Both factors tend to lower the level of material that can be read with understanding. Most children retarded in mental and educational development (perhaps all but the lowest 5 or 6 per cent in the general population) should be able to learn to read fairly well material which they are capable of understanding (Bond, 1940; Tinker, 1932). (This would mean children having I.Q.'s above 75, approximately.)

EMOTIONAL MALADJUSTMENT

Another factor associated with reading disability is emotional maladjustment. Like educational retardation emotional maladjustment may be either cause or effect of reading disability, or both. Failure to make progress in reading may create emotional disturbances. On the other hand, maladjustment, whatever its aetiology, may interfere with development in reading, such that improvement in adjustment becomes a condition to improvement in reading. Just as the teacher often finds it advisable to treat reading

retardation and educational retardation as a joint problem, so the clinical psychologist often finds it advisable to treat reading retardation and emotional maladjustment as a joint problem (Despert and Pierce, 1946; Fernald, 1943; Missildine, 1946; Sherman, 1939).

LACK OF READING READINESS

In reading as in other phases of clinical and educational work it would seem the wiser course wherever possible to seek to prevent difficulties rather than depending upon correction when they develop. By the use of intelligence tests, supplemented by the use of reading readiness tests, it is possible to arrive at a serviceable prediction as to when a pupil is ready to learn to read. Authorities have suggested that with existing methods of instruction a mental age of six and a half years is a safe figure. Again reading readiness scores are valuable supplements. Knowledge of the beginner's home background should also prove helpful. Children who come from homes that provide good facilities for child development, including such factors as education of parents, children's books, travel, stimulating toys, etc., show greater evidence of reading readiness and make better progress in reading throughout the first grade than do children who come from homes providing meager facilities. The favored children have an advantage even when test intelligence is held constant.

SENSORY DEFECTS

The vision and hearing of a subject with reading disability are always investigated in the reading clinic. The Snellen Chart, which is available in many school systems, is used by teachers to measure visual acuity but it does not check on other necessary visual functions in reading. The Betts Telebinocular and the Ortho-Rater are used in the reading clinic to check visual acuity, refractive errors, fusion, and eye-muscle balance. All subjects with questionable or failing performance on these tests are referred to eye specialists. This becomes especially desirable in cases that are suspected to be in need of sight-saving work. While visual defects account for only a small number of reading problems, they occur with sufficient frequency to warrant a careful examination of vision (Imus, Rothney, and Bear, 1938).

A type of visual abnormality that has come to the attention of research workers more recently is aniseikonia, which means unequal images. Apparently inequalities in the size of the two images interfere with fusion. Individuals seem to differ in the extent to which they can adapt, so to speak, to the handicap. In certain cases a difference as much as 5 per cent in size may make fusion practically impossible. Preliminary research has indicated that aniseikonia is a considerably more important factor in reading disabilities than other types of visual aberrations studied heretofore (Despert and Pierce, 1946).

The most accurate test of hearing acuity is the audiometer, but where this instrument is not available teachers and psychologists find the whisper test satisfactory. In this test the examiner whispers twenty unrelated words at a distance of 20 feet, which the subject attempts to repeat. The test is administered with one ear covered, then the other, and finally with both uncovered. If the child can repeat correctly 90 per cent of the words, his proficiency is judged satisfactory for the typical classroom. All serious auditory defects are referred to an otologist. As with vision, auditory defect accounts for only a small number of reading difficulties. However, in some cases it may be the principal cause of poor reading and it warrants careful testing in the reading clinic.

MIXED AND IMPERFECT LATERAL DOMINANCE

The question of lateral dominance, or lack of it, as signified by right-handness and left-eyedness, or vice versa (mixed laterality), and imperfect laterality (no decided preferences) has been associated with discussions of reading disabilities for the last two decades. Putatively, lack of lateral dominance as exhibited in the ways just described is symptomatic of lack of cerebral hemisphere dominance. The latter has been put forward as an explanation of various reading difficulties, particularly those associated with reversals, inversions, and other errors connected with the reading of symbols. It is true, of course, that poor readers make errors of this type much more frequently than do good readers, but research has failed to connect them to any important degree with laterality phenomena (Witty and Kopel, 1936).

REVERSALS AND INVERSIONS

Even so, the problem of reversals is not to be ignored. Typical instances are reading saw for was, casual for causal, or vice versa; the confusion of letters *b* and *d* or *p* and *q;* the reversal of words in a phrase, as the *bad big wolf* for *big bad wolf*. This type of difficulty is also sometimes accompanied with inversions, *p* for *b* and *u* for *n*. Reversal errors are quite common in beginning reading. They usually

disappear in the normal course of instruction, which emphasizes left-right progression in reading and writing. However, they sometimes remain a persistent source of trouble. The difficulty may also be accompanied with the tendency to write backwardly. When a pupil does not respond to the usual emphasis upon left-right progression more strenuous measures must be taken. He may be employed at tracing words. It sometimes helps to make the letters quite large so as to increase the kinaesthetic experience. After tracing a word he may be asked to copy it. Some clinicians have found in the case of copying that if the pupil persists in writing words backward it helps to have him begin at the extreme left-hand side of the page. After tracing and copying the pupil should be asked to write the word from memory. These and similar devices have proved helpful in overcoming the difficulty, but it should be emphasized that certain cases are quite stubborn and require a great deal of patience and ingenuity (Fernald, 1943; Stranger and Donahue, 1937).

TESTING RATE AND COMPREHENSION

The great majority of reading disabilities fall into two classes, those involving rate and those involving comprehension. At least these are the two main classes of symptoms. Naturally, there are causative factors. Since as already noted rate and comprehension are not closely related, deficiencies in both may be exhibited by the same pupil or either may be exhibited without the other.

Various procedures are used in reading tests for measuring proficiency in rate and comprehension. Some of these yield separate rate and comprehension scores; others, while purporting to do so, actually confuse the two in such a way that independent measures are not obtainable. The Traxler Reading Tests (1942) and the Iowa Silent Reading Tests (1943) compute independent rate scores by dividing the number of words of connected text read by a standard time value. The reading tests (1943) of the Cooperative Test Service yield what is known as a rate of comprehension score. Here text and questions appropriate to the text are presented to the pupil at the same time with instructions to answer the questions by consulting the text. The rate of comprehension score is the number of questions answered correctly, minus a correction for wrong answers, within a time limit. This method does not yield an independent rate score since the score is a function of how well or how accurately the student reads as well as how fast he reads. A pupil who responded to ten paragraphs and thirty questions and got all right would have a rate of comprehension score of 30. Another pupil who read equally fast but answered 5 of the questions incorrectly would be given a score of but 20. Still another pupil who covered only two-thirds as much might earn a score of 20 if he read with perfect comprehension, as measured.

The most common procedure for testing comprehension is that of ascertaining the number of questions a pupil can answer correctly (in consequence of reading accompanying text) within a time-limit. Presumably if two readers comprehend equally well they should make equal scores on a comprehension test regardless of their comparative rates. However, this method of measuring comprehension does not permit this. The faster of the two readers will necessarily earn the higher score. There are ways of circumventing this difficulty, one of the most attractive of which is the method utilized in the Cooperative reading tests (Stroud, 1942). The score obtained is known as a level of comprehension score, as opposed to the rate of comprehension score already referred to. These tests are divided into three approximately equal scales of thirty items each. In effect the level of comprehension score is the average number of items answered correctly on the scales completed. A reader who completed but one scale and responded correctly to twenty-five items would receive the same score as a reader who completed all three with an average accuracy of 25, as $23 + 27 + 25 \div 3$.

TRAINING IN READING

TRAINING IN RATE

How do slow and fast readers differ in the things they do when they read? Some of the most important respects in which they differ are in amount of verbalizing, quickness of perception of word forms, width of perceptual span, or, conversely, the number of fixations per line, and the number of regressive movements. Naturally, identifying these ways in which readers differ is not to account for the differences. Presumably people differ fundamentally in rate of mental reactions and in the number of letters and words that can be perceived in a single fixation. There is no reason to suppose that everyone would under optimal conditions learn to read the same material at the same rate. However, it seems clear that most slow readers can learn to read much faster than they do. Experience has shown that a group of slow readers at the college level can within

a few weeks of intensive practice double their average rate. Thus while admitting that there may be important differences in rate aptitude, it seems clear that slowness in rate as now generally found must be charged to bad habits.

Apparently it has never occurred to many slow readers that it is possible and desirable to read without implicitly saying the words as they react to them. One does not normally feel called upon to say to himself the words he hears others say when listening. One does not have to say the name of an object in order to perceive it aright. Nor is it necessary to say the names of printed symbols in order to perceive their meaning. The slow reader typically requires 8 to 10 fixations per line. A good reader may do with half this number. Important differences are found in fixation time. A reader who averages one regressive movement per line adds from about a fifth to about a tenth, depending upon his perceptual span, to the time required to read a page (Buswell, 1939; Renshaw, 1945).

All of these processes are subject to improvement by appropriate training. Reading span can be improved by brief exposure, by means of a tachistoscope, of words and phrases of increasing length. Perceptual time can be improved by practice, a suitable means of which is practice in the perception of words and phrases exposed for a brief interval, for example, a tenth of a second. The average fixation time of adults in reading is about one fourth of a second. The clinician may wish to start with longer exposure times, perhaps a fourth of a second and work toward shorter times. Reading training films, such as the Harvard series and the metron-o-scope, provide practice in controlled eye movements. The Harvard films typically provide for three exposures per lines, the first phrase or group of words being exposed for a brief time and then giving away to the next which appears in its proper position in the line, and so on, proceeding across and down the page as in reading. The exposure time can be decreased by increasing the speed of the projector. For slow readers, at least, the film tends to enforce a larger reading span and quicker perceptual span. It also requires the student to read without making regressions. When the projector is operated at higher speeds, such as to present the material at a rate of 300 to 400 words per minute it becomes very difficult for the reader to verbalize as he reads (Buswell, 1939).

The phrasing-pacing devices have proved helpful in training programs. Since they provide a kind of reading practice different from that which the student is accustomed to, and on the whole, an interesting practice, their motivational value tends to be high. Experience has shown, however, that well conceived, systematic, motivated practice in reading the printed page may accomplish equal results both in terms of reading rate and eye-movement behavior (Westover, 1946). In all cases accurate daily records of progress should be kept.

TRAINING IN READING COMPREHENSION

A reader comprehends what he reads in about the same way he comprehends anything else. Comprehension in reading, assuming a student has achieved satisfactory proficiency in the basic reading skills, should be part and parcel of educational development. However, the reading development of some students becomes arrested with the result that reading deficiencies hamper educational development. This condition presents a problem for the reading expert or clinician.

Not every poor reader however presents a special problem for the reading expert or psychologist. The majority of poor readers present other handicaps also and, indeed, owe their reading deficiencies to these handicaps. The most important groups are backwardness in mental and educational development. It is a function of the diagnosis of the reading expert or psychologist to ascertain the mental and educational development of the poor reader. If it is found by the use of appropriate intelligence and educational and reading tests that the student's reading comprehension development is considerably below his mental and general educational development, special training in reading is indicated. The Durrell-Sullivan Reading Capacity Test may be serviceable in this connection also (Buswell, 1939). For many such cases the use of remedial reading manuals and exercises by the regular or special reading teacher is sufficient. More stubborn cases require the services of a clinical psychologist. The realities of special exercises of this kind lie in having the reader carry out the mental activities expected of him when he reads (Lewis, 1944; Triggs, 1943).

THE READING CLINIC

The organization of the reading clinic is determined by the size of the school system and the educational level at which it is designed to function. The chief requisite at the elementary and secondary school levels is close cooperation between the teachers and

the clinic. Those with reading disability of an extreme or complex nature are referred to the school psychologist for examination and recommendation. Reading therapy may be handled by the regular classroom teacher or by the psychologist, or by the teacher and the psychologist together, or by a special remedial teacher, depending upon the nature of the disability and the facilities of the school. Both psychological examination and reading instruction are usually handled by the psychologist in a reading clinic at the college level.

There are few special techniques of reading instruction known to clinicians that are not also known to the better classroom teachers of reading. The special value of the psychologist and reading clinician seems to lie in the fact that these specialists are in a position to make better diagnoses and especially can they better interpret the reader's difficulties in the light of his total adjustment and developmental picture. Also because they frequently deal with the more difficult cases they develop greater "know how."

READING REFERENCES

Fernald, G. M., *Remedial Techniques in Basic School Subjects.* New York: McGraw Hill Book Company, Inc., 1943.

Gray, W. S. (ed.), "Reading and Pupil Development." *Supplementary Educational Monographs,* 1940, No. 51, Part I.

Guiler, W. S., and J. H. Coleman, *Getting the Meaning.* Philadelphia: J. B. Lippincott Company, 1945, Books VI to XII.

Lewis, Norman, *How to Read Better and Faster.* New York: Thomas Y. Crowell Company, 1944.

Triggs, F. O., *Remedial Reading.* Minneapolis: University of Minnesota, 1943.

74. SPEECH DIFFICULTIES

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Speech correction or phoniatry is a distinct branch of clinical psychology with its own specialized techniques. The psychologist is prepared for the field only after additional academic discipline in experimental phonetics and speech pathology. The most ancient book known was on speech, and speech correction was actively practiced as early as the fifth century B.C., yet modern practice in phoniatry started as recently as 1879 (Gutzmann), and was introduced into America in 1880 by Bell, who is directly responsible for its popularity with speech teachers.

CLINICAL SERVICE

ADMINISTRATION

Clinics for speech correction are usually connected with universities and hospitals. Two clinics were active in 1912, by 1932 there were 76 (Voelker, 1933), and since that time the number has more than doubled. About 75 per cent of the speech clinics are supported by a university department of speech, where on the average it is budgeted annually at $3,000.00 and administers correction to ninety subjects per semester, usually without extra

fee. The subjects are students but 40 per cent of these university clinics also accept residents of their state. The justification of free psychological service is that the subjects are used for demonstration and practice in teacher education courses. Where fees are charged, they average seven and a half dollars per semester, which is half the cost of the service. In private practice, psychological examination fees range from five to twenty-five dollars, and psychological therapy fees from two to five dollars per half-hour. Psychological recommendations vary: half the subjects receive 100 minutes per week, in two periods, for 4 months. Half of the clinic work is done by its director as a part of his teaching load, 25 per cent by paid assistants, and 25 per cent by student clinicians for school credit.

The over-all persistent problem of speech correction has been what to do about the four million public school children who have minor defects which if not corrected early may develop into clinical problems. Heltman (1938) showed that the best solution lies in requiring of each elementary school teacher a university course in speech correction techniques, with demonstrations of speech difficulties and followed by supervised clinical practice. It is only then possible for phoniatrists to serve the remaining serious cases as ambulatory subjects or in traveling clinics.

After World War I, the military handled a few speech disorders in connection with a Red Cross hospital devoted to hearing rehabilitation. Such renovation service was extended in World War II, under the Veterans Administration, to units in three general hospitals. Combined military and civilian staffs were organized late in the war for hearing defects, and later divided into hearing therapy and speech therapy departments.

CLINICAL PROBLEMS

The more common speech problems encountered in a typical speech clinic and the psychological service rendered are illustrated in Table 1, below. The classification and nomenclature are those recommended by the American Speech Correction Association (Stinchfield, 1933). *Dysphasia* is a weakening of the power of linguistic imagery due to injury or disease of the dominant frontal lobe of the cortex together with posterior lesions of varying sizes. *Dysarthria* is an innervation disturbance of articulation due to injury or disease of the brain stem or peripheral nerves. *Dysphemia* is an intermittent and variable fluency disorder symptomatic of psychoneurosis. *Dyslogia* is a weakened form of language behavior due to impaired reasoning in psychoses and feeblemindedness. *Dyslalia* is a functional or structural defect of articulation, excluding dysarthric paralysis, and is dependent on malfunctioning of the lips, tongue, or palate, or malformation of these articulators. *Dysrhythmia* is a functional defect of the cadence and inflective elements of voice. *Dysphonia* is a functional or organic defect in voice quality which muffles or interferes with phonation.

Subjects sometimes have more than one of these difficulties and are classified under "All types" in the table where the totals are rounded to two significant figures. The percentage frequency of occurrence of speech defects in the general population is based on 15,153 defectives found in studies of 101,020 individuals of all ages and of several walks

Table 1: The Occurrence and Correction of Speech Defects

Type of Speech Defect	Percentage of Occurrence of Speech Defect in the General Population			Percentage of Subjects Corrected in Phoniatric Practice for Difficulties	
	Handicapping	*Disabling*	*Total*	*Handicapping*	*Disabling*
Dysphasia	0.21	0.11	0.32	0.02	0.50
Dysarthria	0.42	0.29	0.71	0.87	0.76
Dysphemia	2.71	0.91	3.62	0.06	0.93
Dyslogia	3.72	0.50	4.22	0.83	0.81
Dyslalia	9.37	0.72	10.09	0.57	0.42
Dysrhythmia	1.85	0.44	2.29	0.13	0.97
Dysphonia	4.99	0.97	5.96	0.22	0.86
All types	12.00	3.00	15.00	0.38	0.75

of life. The percentage of subjects corrected in phoniatric practice for handicapping and disabling speech difficulties is based on psychological service to 2,416 subjects.

PSYCHOLOGICAL EXAMINATION

Phoniatry, as a literature and practice, has been confined largely to stammering, whereas the subject is inclusive of the speech difficulties of the seven classifications above. Record analysis in clinical work is in terms of this classification. The psychologist should not run the risk of being too specific until after therapy is well under way. The subjects are seldom of pure types but have complicated patterns of difficulties.

The traditional separation of organic and functional difficulties in the medical literature on the theory that organic defects are other than psychological in causation is not feasible from the point of view of speech therapy. The presence of an organic anomaly in no way assures that there will be a speech defect. Research shows that identical organic conditions exist with both normal and defective speech. Organic conditions can result in speech difficulty only for psychological reasons, generally speaking, and those psychological reasons are identical and follow the same general organic and functional principles.

The psychological examination for speech defects follows the usual course of clinical study, involving interviewing, rating, testing, and inventorying, with various measures selected to meet the need of the individual subject. But special techniques are required in the examination of speech difficulties.

PHONETIC SYMBOLS

It is unfortunate that the English letters are not descriptive, e.g., *o* is pronounced differently in the words: not, cold, loft, brown, foot, loose, monk, rouge, round, boil, etc. Also, the defective is not partial to the English language in his development of peculiar articulations. To meet this condition speech examiners use the phonetic code system shown opposite, which is understood in all countries just as is mathematical symbolism. It is far older than the international chemical symbols. If on examination, it is found that the letter *c* in candy is pronounced like the letters "phth" in phthisis, then the examiner uses the code system above to record "k>t," where > means "becomes."

THE DYSPHASIAS

Dysphasia is characterized by the inability to express, comprehend, or formulate speech, so that there occur expressive, receptive, and amnesic subjects. When the physician has arrested the brain disease, psychological service begins with the objective of preparing the subject to enter into simple social competition and find remunerative occupation. In the examination, the psychologist notes particularly: slips of the tongue, peculiar choice of words, and whether certain words appear only with emotion. Psychological therapy is concerned with relearning, or learning by substitute methods, these specific missing and defective responses. Clinical configurations do not localize lesions, and cortical destruction does not always result in behavior defects.

The association method is used to correct any type of dysphasia. If the word steak were missing, the subject would be given a lesson wherein he would cut, buy, cook, and eat a steak, while he speaks, reads, and writes the word steak.

EXPRESSIVE DYSPHASIA

This difficulty is the so-called motor or verbal dysphasia that comprises about half of all dysphasias. The speech is scant, labored, and hesitant. The subject reacts to directions fairly well, and tries to correct his inconsistent mispronunciations by stopping and making a fresh start.

FAULTY ARTICULATION. The predominant disability may be in articulation. A serviceable gesture language can be developed into articulatory movements. Basic English, in which all expression uses only a thousand words, is a good first vocabulary to develop. The goal of creative speaking is approached first through yes and no answers.

FAULTY INTONATION. The predominant disability may be in intonation. After the first sounds, the speech trails off into mumbling, because the rate is being increasingly accelerated until it culminates in an inarticulate, progessively attenuated groan. Therapy consists of exercises on the relative time given to each syllable, progressing from rhythmic poetry to conversation, to develop a syllabic cadence.

RECEPTIVE DYSPHASIA

Speech in the traditional sensory type of receptive dysphasia is characterized by being rapid and expulsive in force, garbled in syntax, and erroneous and neologistic in diction. When questioned, the subject

		Bi-labial	*Labio-dental*	*Dental and Alveolar*	*Retroflex*	*Palato-alveolar*	*Alveolo-palatal*	*Palatal*	*Velar*	*Uvular*	*Pharyngal*	*Glottal*
CONSONANTS	*Plosive*	p b		t d	ʈ ɖ			c ɟ	k g	q ɢ		ʔ
	Nasal	m	ɱ	n	ɳ			ɲ	ŋ	N		
	Lateral Fricative			ɬ ɮ								
	Lateral Non-fricative			l	ɭ			ʎ				
	Rolled			r						R		
	Flapped			ɾ	ɽ					R		
	Fricative	ɸ β	f v	θ ð | s z | ɹ	ʂ ʐ	ʃ ʒ	ɕ ʑ	ç j	x ɣ	χ ʁ	ħ ʕ	h ɦ
	Frictionless Continuants and Semi-vowels	w | ɥ	ʋ	ɹ				j (ɥ)	(w)	ʁ		

VOWELS	*Front*	*Central*	*Back*
Close	i y	ɨ ʉ	ɯ u
Half-close	e ø	ɘ	ɤ o
Half-open	ɛ œ	ɜ	ʌ ɔ
Open	æ	ɐ	ɑ ɒ

(Secondary articulations are shown by symbols in brackets.)

OTHER SOUNDS.—Palatalized consonants: tʲ, dʲ, etc. Velarized or pharyngalized consonants: ɬˠ, ɗˠ, zˠ, etc. Ejective consonants (plosives with simultaneous glottal stop): p', t', etc. Implosive voiced consonants: ɓ, ɗ, etc. r̆ fricative trill. σ, ʂ (labialized θ, ð, or s, z). ʧ, ʒ (labialized ʃ, ʒ). ʇ, ʗ, ɔ (clicks, Zulu *c*, *q*, *x*). ɻ (a sound between r and l). ʍ (voiceless w). ɪ, ʏ, ʊ (lowered varieties of i, y, u). ɜ (a variety of ə). ɵ (a vowel between ø and o).

Affricates are normally represented by groups of two consonants (ts, tʃ, dʒ, etc.). but, when necessary, ligatures are used (ʦ, ʧ, ʤ, etc.), or the marks ‿ or ⁀ (t͡s or t‿s, etc.). ‿ ⁀ also denote synchronic articulation (m͡ŋ = simultaneous m and ŋ). c, ɟ may occasionally be used in place of tʃ, dʒ. Aspirated plosives: ph, th, etc.

LENGTH, STRESS, PITCH.— : (full length). · (half length). ' (stress, placed at beginning of the stressed syllable). ˌ (secondary stress). ˉ (high level pitch); ˍ (low level); ˊ (high rising); ˎ (low rising); ˋ (high falling); ˏ (low falling); ˆ (rise-fall); ˇ (fall-rise).

MODIFIERS.— ˜ nasality. ˚ breath (l̥ = breathed l). ˬ voice (s̬ = z). ʻ slight aspiration following p, t, etc. ˖ specially close vowel (e˖ = a very close e). ˗ specially open vowel (e˗ = a rather open e). ̱ labialization (ṉ = labialized n). ̪ dental articulation (t̪ = dental t). ʲ palatalization (ż = ʒʲ). ˔ tongue slightly raised. ˕ tongue slightly lowered. ˃ lips more rounded. ˂ lips more spread. Central vowels ɪ̈ (= i̽), ʉ̈ (= u̽), ɵ̈ (= ə˔), ɵ̞ (= ɵ), ɛ̈, ɔ̈. ̩ (e.g. n̩) syllabic consonant. ̯ consonantal vowel. ʃˢ variety of ʃ resembling s, etc.

Figure 1 (XI–74): *The International Phonetic Alphabet (Revised to 1938)*

may hear but not comprehend. Reading is disturbed. The dysphasic child must not be confused with the deafmute. A differentiation between deafness and dysphasia is made by the conditioning test. The child is blindfolded, and at varying intervals, a tone is sounded. Each time the tone is sounded, the clinician snaps the child's forehead hard enough to make the child flinch. Occasionally when the tone is sounded the snapping is omitted. At these times, the clinician observes whether or not the child flinches. If he flinches, the subject has dysphasia; if he does not flinch, he is deaf. Retraining for dysphasia starts auditorily, by pronouncing behind the subject's back, and continues through the visual and tactile senses. Exercises consist in sorting out synonyms, following directions, and retelling stories.

AMNESIC DYSPHASIA

This is a comparatively rare difficulty in which the speaker appears quiet but worried; and with fragmentary fluency tries to find the word he wants, even to paraphrasing and defining. He always recognizes the correct word when supplied, and can even select it from a series. In re-establishing the vocabulary, as many memory devices as possible are used through as many senses as possible. When relearning the names for things, the object should be present. For relearning abstract words, a personal card dictionary can be kept. The psychologist supplies a word to which the subject must answer by giving its opposite or synonym.

THE DYSARTHRIAS

Dysarthria includes all disturbances of articulation due to interference in the discharge of nervous impulses. The cranial nerve roots in the medulla or their ranii may be involved, or the lesion may be concerned with the three motor tracts which converge on them. Since speech is only one type of body coordination, the paralyzed articulatory action is defective in the same pattern as the rest of the body. Walking, holding objects, eating, etc., have to be taught before articulatory training is undertaken. Scores in either verbal or performance intelligence tests are not predictive of possible development as the I.Q. rises during therapy. Since there are no other nerve paths that can be used instead of the damaged ones, there is no substitution or transfer of function, but merely the masking of the paralysis in dysarthric therapy. The psychologist merely aims to develop the amount of ability the damaged nervous system will allow. His objective is to establish the individual as a normal-appearing, self-supporting personality, and to do this he must help the individual develop a feeling of worth which will, in turn, help him to succeed. The high quality of therapy is suggested by the large number of paralyzed individuals without manifest defects.

All dysarthric phoniatry follows the same general pattern. In order to overcome mumbling, the subjects must be resigned to a slow speaking rate and taught to make it effective. After the subject has learned the technique of alternate tensing and relaxing, called progressive relaxation on muscle groups least concerned with speaking, he can apply it to the muscles of speaking, whereupon speech training follows normal development and shows rapid results. Articulation is based on genetically prevocal gymnastics and taught specifically by the motor kinaesthetic method (Stinchfield and Young, 1938), which consists in a procedure wherein the psychologist actually manipulates and manoeuvres the tongue and lips into the positions and through the movements of articulation. It is very important that intonation be taught as variation in vowel length, where stress is accomplished by drawling out the syllable, rather than by forced effort. Smiling, grimacing, gesturing, and writing have to be improved. The number and valence of stimuli attended to in the life space have to be reduced through an understanding and prediction of the content of situations, so that the subject will not be surprised and can maintain his relaxation.

FLACCID DYSARTHRIA

This difficulty of articulation may occur in lesions of the efferent components of some of the cranial nerves. The lesion may be in the nerve root or nerve trunk. The various flaccid paralyses are named according to the particular nerve damaged.

HYPOGLOSSAL DYSARTHRIA. When the hypoglossal nerve is involved there may be a deviation of the tip of the tongue toward the paralyzed side. The diagnostician determines the strength of the tongue on each side by holding his fingers to the subject's cheeks while the subject alternately pushes his tongue against each cheek on the inside. The speech is characterized by slurred consonants and indefinite vowel quality. The tongue can be made to give a normal muscular response while a depressor rests on its median line. Therapy is based on compensatory relaxation which restrains the active normal side in order to permit action by the weak, paralyzed side.

FACIAL DYSARTHRIA. When the facial nerve is involved the muscles of expression may be disturbed.

The cheek seems to be drawn down on the paralyzed side obliterating the nasolabial fold, while there is excessive activity to a bizarre point on the nonaffected side. Therapy aims at eliminating the "tough" expression which results from talking out of the side of the mouth. It starts with practice before the mirror. The subject is trained to hold back the normal cheek in order to give the weaker muscles an equal chance.

ATAXIC DYSARTHRIA

This difficulty in speech may result from lesions in the cerebellar tract. Ataxiarthria, or scanning speech, is characterized by an explosive, floppy start, and continues slowly with excessive division of syllables, long pauses, and drawling cadence, to the final enunciations which are apt to be pushed out sharply on residual air. In the therapy, distracting stimuli should be disregarded (dedifferentiation) so that a voluntary rhythmic pattern of speech can be maintained.

ATHETOID DYSARTHRIA

Athetoid dysarthria may occur in striate body lesions and lesions in the extrapyramidal tract. The subject may be rigid and immobile or, at the other extreme, twisting and jerking. The bradyarthric voice is likely to be weak, modulation is reduced, articulation is extremely slowed down, and the expression remains vacant and lacking in the visible display of feeling states. In therapy, the extraneous movements are brought under control by negative practice.

SPASTIC DYSARTHRIA

Spasmoarthria is usually discussed as birth injury or cerebral palsy caused by lesions of the Betz cells and lesions of the pyramidal tract. There is a relative loss of voluntary innervation, increase in muscle tonus and irritability, dragging speech, and indistinct articulation which requires great effort and is accompanied by facial and bodily distortion.

THE DYSPHEMIAS

Dysphemia is the name given to all speech disturbances, regardless of form, which arise as the manifestation of psychoneuroses. Of the several dysphemias, stuttering has been given the most attention. Since Orton's cerebral dominance theory could be neither proved nor disproved by Travis, the present popular neurological explanation is corticothalmic dysintegration.

SPASMOPHEMIA

Spasmophemia or stuttering is characterized by defective fluency resulting from an excessive occurrence of prolongations, word repetitions, and syllable repetitions. The blocking mechanism or barrier employed in stuttering, which brings about these breaks in speech fluency is the sphincter of the larynx. All tics or starters are mere modifications of holding the breath.

Repetition of syllables is normal for 25 per cent of utterance in preschool ages during this period of transition from the one-word sentence to the phrase sentence. Regardless of age, stuttering breaks in fluency occur normally at any time when an individual finds it necessary to speak while for an emotional or locomotor reason he dares not.

Stuttering persists and becomes a defect as a result of conditioning or insight. Therapy varies according to cause. If the social environment is operating so as to require, yet prohibit, speech these conditions must be altered or else the subject must be removed to a more favorable social *milieu*. If the subject uses stuttering as a defense mechanism in the sense of an Adlerism inferiority, then re-evaluational procedures are indicated to relieve the need for stuttering in addition to specific therapy to remove the symptom. Most frequently the stutterer continues in his difficulty because he considers himself, or is considered, a defective. Personality deviations, aside from the stutter, if they occur at all are usually related only to the speech manifestation. Thus the removal of the symptom will not only alleviate the disturbance but remove the cause, and will operate to palliate maladjustments. This explanation accounts for the symptom-removing nature of most clinical procedures for the alleviation of stuttering.

REFLEXIOLOGICAL TECHNIQUE. The characteristic of intermittency or periods of relief in stuttering has given rise to a reflexiological procedure which assumes rightly that the speech within these periods of freedom from blockage is normal. The record analysis in this method is a sorting out of those items indicating the circumstances under which fluency occurs. The subject is put into various of these fluent situations and required to practice speaking. The psychologist's task then is to expand these situations of confidence so that they encompass ever-widening social activities until in the end all situations are met successfully. Lesson plans for clinic periods are given by Bluemel (1930).

THE SIGH PRINCIPLE. The most universal clinical procedure is based on the James-Lange theory of emotion, in which the subject is taught to act as if he did not stutter and is adjusted to that type of response. A device is used to give him exercises in rhythmic controlled breathing with the specific objective of eliminating interference from holding the breath. This device, invented by Gutzmann (1879), is called the sigh principle. This consists of an exercise wherein the patient breathes in and, omitting the glottal catch, immediately starts to breathe out. Simultaneous head or arm movement may be used. From this point on, expiration is modified. First, expiration is extended. Next, whispered vowels, sibilants, and other breath-taking phonetic elements are prolonged on the out-going breath. Modification continues with exclamations starting with *h* or *wh* and soon adds any phrase or difficult word regardless of phonetic structure. When the sigh principle has been mastered, the subject is given to understand that he is not stuttering.

GESTALT TECHNIQUE. Another procedure, developed by Voelker (1942) according to the principles of Gestalt psychology, does not break speech into its parts or separate the individual from his speech but starts immediately, even during the psychological examination, with the configuration of the whole person making a speech response. Stuttering is conceived as a time-device barrier for separating the cue to speak from the speech response. It takes time to work up a severe spasm and therapy consists in reducing the time element. The key phrase in explaining the procedure to the subject is "think out loud." Drill consists in having him pronounce each syllable as he writes it, pronouncing each word as he points to it, and saying the word immediately when he sees it. The metronoscope is used. Clinical work includes vocalization of verbal associations, as in the free association tests, and the vocalized flight-of-ideas of the psychoanalytic method. A great deal of practice is given to answering rapid-fire questions, and pronouncing troublesome words from flash cards. Emphasis is on the elimination of thinking ahead while speaking, silent choice of the avenue of thought in giving answers, and in looking ahead while reading aloud. By eliminating "thinking ahead" the flight of thought is slowed while the speech is speeded up. The whole body attitude, including gestures and facial expression, are included in this method of working with the complete speech response as a behavior pattern. The subject gets into the spirit of speaking. The emphasis is on insight, and each session merely strengthens and broadens this insight.

CRYPTOGENETIC

Cryptogenetic or concealed stuttering should be differentiated from the overt type described above. The subject shows no signs of stuttering here, but complains of substituting for troublesome or taboo words (Steadman, 1935, 1936). In therapy, a word-demon card-dictionary is practiced on by the flash-card method.

APHEMIA

Complete lack of speech is called aphemia. Some children never start to talk; others who begin stop talking suddenly (Blanchard, 1933). Therapy may deal with the readjustment of the subject himself or may manipulate the social environment.

TACHYPHEMIA

Tachyphemia or neurotic cluttering is characterized by nervous rapid speech with conspicuous pauses and tremulo in the voice. It is related only to particular situations, such as trembling before authority, or certain reactions to stage fright. Overevaluation of the importance of the situation or attempting to do better than humanly possible may operate as causes. On the other hand, a history of defects or unsuccessful experiences is frequently found. There may be a separation of the person from reality; and he is very conscious of the mechanical aspect of the act of speaking. Re-evaluation therapy, which arrives at a description of what the subject fears and does must always be followed by having the subject meet successfully similar situations to those of the phobia.

THE DYSLOGIAS

SEMANTIC DISORDERS

Semantic disorders are characterized by irrelevant verbigeration or wordiness, called catalogia, and contentious and cantankerous response. They are found in psychotics and the maladjusted. The fanatic impetuosity is shown in snap judgments. There is a lack of ability to use logic. Words may be identified with objects or they may be used as if they said everything that could be said about things. The subject may act as if he had projected the abstraction in his head to the outside world. There is apt to be great emphasis on similarities, while differences are ignored. There tends to be two-

valued rather than multivalued evaluation. Predictability of statements is ignored.

Therapy follows definite procedures. Adequate methods of evaluating are developed through training a consciousness of abstracting, which includes checking inferences with reality. Factual descriptions are stressed over opinions. Drill consists in making temporary judgments with a readiness to alter conclusions. The subject is trained to use language according to scientific method applied to everyday life.

DYSLOGIA IN AMENTIA

This defective speech response is characteristic of the feeble-minded. Although speech is the most important single item in the behavior of children, eleemosynaries have yet to heed the advice of Goddard (1914) that the feeble-minded should be treated as children. The objective of speech training is to mask their ignorance sufficiently to give them the semblance of speech response appropriate to their characteristic behavior. But speech training does not improve the intelligence; the imbecile remains an imbecile, though his speech response makes him a more compatible imbecile.

The cretin is taught to speak slowly drawing out each syllable with stolid expression and deliberate articulatory movements (Voelker, 1935). The mongol is taught acting and exaggerated intonation, with slight or no attention given to articulation (Voelker, 1937, 1939). Psychoneurotic speech disorders are found in mongols and are given creative dramatic therapy (Voelker, 1936).

THE DYSLALIAS

Dyslalia is the name for nonparalyzed defects of articulation. The dyslalias are the least disabling of the speech defects and few subjects reach speech clinics.

FOREIGN BROGUE

Brogues occur when English intonation and articulation are fashioned after another language. The child has a brogue when his speech climate is a brogue. The youth or adult has a brogue because the secondary language is pronounced like the native tongue (Voelker, 1934). Correction starts with babbling gymnastics and training in articulatory positions, but therapy is never complete without dynamic phonetics (Barker, 1936, 1940) which stresses the movements from beginning to end in each syllabic pattern. The faulty intonation is overcome by exercises in jabbering which are modified into sentence duration intonation (Voelker, 1942).

PHONETIC DEFECTS

The omission or distortion of articulatory movements are classed as phonetic defects. The correction of lisping (Voelker, 1936), *r* defects, and other phonetic difficulties, follow the motor kinaesthetic method (Stinchfield and Young, 1940), wherein the mouth mold and movement are formed for the subject by the psychologist's fingers.

LALLING

A type of dyslalia in which the jaw movements are reduced is called lalling. The relative indistinctness gives the impression of rapid rate. The chances of a child starting to talk with only words, called babbling, or only intonations, called jabbering, are only slightly in favor of the word method, and the psychological record is apt to indicate that intonation was dominant over articulation and that the child was extremely active. To advise the laller to slow down is to rob him of his only asset, the intonation, and will render him completely unintelligible (Voelker, 1935). Instead the psychologist encourages the subject to include all the necessary syllables into his superior pattern of cadence.

TONGUE-TIED

This is a superstition. Untying the tongue has been practiced since the sixth century (Aetius, 1394). Spencer and Cade (1931) recommend punishment of the cutters to halt the practice.

ABSENCE OF TONGUE

Absence of a tongue does not interfere with intelligibility of speech (Jussieu, 1718). In all instances on record, speech has developed spontaneously. But it may be necessary to help the subject develop a special method for pronouncing four or five of the phonetic elements.

DELAYED SPEECH

Delayed speaking occurs in children who have been ill during infancy. It is important to discover which stages of speech development have been omitted so that therapy can start at that point and follow normal speech development. The teaching may require the babbling and jabbering, and the stimulus method completes the therapy, i.e., the psychologist pronounces the sounds, syllables, or sentences

five times for each time the subject is asked to pronounce them.

BABY TALK

Baby talk is a special type of adult "courting" enunciation that is sometimes taught to children. It is characterized by clarity of voice, purring exaggerated intonation, and alliterative pronunciations. Children so stimulated learn baby talk rather than the ordinary speech. Like childhood swear words, the fad passes away in a climate with a different speech standard or continues to maturity with changed emotional situation.

INVENTED LANGUAGE

Invented language always takes a human form and maintains the salient characteristics of the native tongue. It never distorts more than 30 per cent of the words and usually less. The spontaneous coining of words by children follows known and meaningful articulatory patterns and is most likely to persist in twins. Phonetic training is useless since there is no articulatory defect and the subjects are never unfamiliar with the language. Motivation for correct speech is best procured by mimicry of the inventions.

SHORT AUDITORY MEMORY SPAN

A short auditory memory span, as tested by digits on the Standford-Binet, results in defective articulation if the number of phonetic elements in words of the active vocabulary exceeds the number of digits of the memory span (Robbins, 1935). Therapy necessitates readjustment of stimulation to a diction of short words.

THE DYSRHYTHMIAS

Less attention and research has been given to the defects of intonation, called the dysrhythmias, than to any other type of phoniatric defect. Subjects complaining of dysrhythmia are badly handicapped because intonation accounts for 40 per cent of the meaning of speech (Voelker, 1938).

DEFECTIVE BREATHING

Those in the defective breathing group begin the pause after the verb or preposition instead of at the end of the sentence. Impromptu drill on organization of response is a catalyzator. General behavior is redirected toward the outside environment.

STRESS PLACEMENT

The most frequent intonation defects are those of stress placement. The lack of emphasis on certain words and loudness of unimportant connectives should be corrected. The subject usually knows which words are important to meaning and is mystified by the reactions to his speech (Voelker, 1938). The mechanism of the defect is the substitution of effort in place of extending the syllable a relatively long time (Voelker, 1940). Therapy is specific in that effort is held constant while duration intonation is made the variable (Bell, 1916).

INFLECTION

Defects of inflections or pitch patterns are rarely the bases for complaints of monotony in speech. Pitch intonation does not denote meaning, but instead seems to be related to affective states and the physiological necessity for variation in pitch on each syllable. The direction of pitch movement in everyday speech is unimportant (Voelker, 1935) except in that the continued using of a pattern of a peculiar affective state, e.g., sissyness or sickliness, gives an unfortunate impression, necessitating readjustment of the individual to acting a more positive part.

SYLLABIC RATE

Words may have similar lengths regardless of the number of syllables. To correct this defective syllabic rate drill is used wherein all syllables are given equal length. To develop the variable cadence of speech, only variation of stressed syllables is taught. The unaccented syllables are taught as though they were all of the same short length.

THE DYSPHONIAS

Disorders of voice follow the same general classifications as speech disorders: neuropathic, psychoneurotic, organic, and habitual reduction of carrying power with blurring distinctness. Whereas speech disorders are found among 17 males to every 3 females, the reverse is true of dysphonia. Resort to relaxation exercises is indicated only when the nature of the defect defies definition since it corrects only 19 per cent of the subjects. Most defects are phoniatric and medication will relieve only one in twenty-five. An exceptional defect, such as mover's hoarseness which is caused by continual lifting of heavy objects, will fall in neither classification.

NEURAL LESION

Paralysis of the laryngeal nerve often is accompanied by loss of the function of vocal cord. If the loss of function is partial, or when only one cord is paralyzed, vocal exercises are practiced while pushing or pulling with the arm muscles taut. Also the respiratory rate is reduced. If the lesion is complete, phonation is accomplished by the false vocal cords.

HYSTERICAL APHONIA

This disorder is treated as psychoneurosis. After re-evaluational measures remove the need for voicelessness a ritualistic means of restoring the voice is recommended.

ORGANIC LARYNGEAL DYSPHONIA

This disorder assumes four principal patterns for correction as follows: (1) in excision of the vocal cords the whispering voice which results is removed by teaching phonation with the false vocal cords; (2) for stridor voice after extirpation of one vocal cord only the same procedure is used; (3) in excision of the whole larynx, where the windpipe and throat are sewed off from one another and breathing is through a hole in the neck rather than the nose, these laryngectomees are trained to phonate by swallowing air into the oesophagus and belching it; and (4) in intralaryngeal web, which is a congenital condition where the front muscular two thirds of the glottis is closed by a membrane and the infant whispers, does not cry, and fusses with smacking noises, the whispered voice method is used. Postoperative psychological therapy with these subjects consists in massage, electrical stimulation, and practice on glottal stops (Koepp-Baker, 1936). The swallowing of air by those of the third group has the same sensation in breathing as occurs in normal voice. The resulting voice is well modulated, with short breath groups, has a pitch of about 50 cycles per second, and is deep in quality.

NASALITY

An opening between the throat and nasal cavity may cause nasality of tone. Eijkman found a 4 mm. opening to be average (1928, 1933, 1934) but Cotton's experiments (1940) demonstrated conclusively that complete closure is more efficient in that it results in less loss of glottal energy. In short palate, where as a result of congenital or operative conditions, the opening is habitually left open, training is directed through the gag reflex to habitual closure. Where the shortness is too great to permit closure, simultaneous glottal stops are added to the sounds *p, b, t, d, k, g, ch,* and *j* (Voelker, 1935). In hereditary long palate, where palate and epiglottis meet, the gag reflex is employed to move the velum back and the tongue and jaw forward (Voelker, 1938). Congenital cleft-palate and hare-lip can be corrected by surgery in the first three months of life, and thus have no ill effects.

The defective speech resulting from later operations is corrected like short palate speech. Roof plates called obturators are recommended in later life if there is an immediate improvement in speech. Hare lips should be corrected by operation because of the defect in facial expression. But one cleft-palate adult has been seen with no speech defect and one has had successful speech correction at thirty years of age without an operation. Therapy consisted in adding glottal stops to all of the consonants and lowering the tongue and jaw position of the vowels.

FUNCTIONAL NASALITY. The hanging of the head by the punished or ashamed, or bad habits, such as talking with the mouth full, are related to functional nasality. *Denasal voice,* resulting in stopped up *m, n,* and *ng* sounds, and distorting 11 per cent of speech, is due to the sound being absorbed in the throat. The subject is trained to narrow the fauces on these letters. However, if he narrows the fauces for all articulations, "whang" results, and this is corrected through the gag reflex and palate gymnastics.

FUNCTIONAL HOARSENESS

Reduction in audibility and intelligibility of speech results from constrictive interference (1) at the top of the larynx above the vocal cords, (2) in the throat behind the tongue, and (3) in reduced jaw opening. This defect is referred to as functional hoarseness.

INFANTILE VOICE. Adults are frequently found who continue to use a voice similar in sound to the prepubescent voice. It is never eunuchoidal, but it is due to muffling of glottal energy by the constriction of the musculature in the larynx above the vocal cords. Occupational hoarseness of singers and speakers, where the complaint is strain, is also corrected by releasing constriction in this same area. It is manifested by clearing the throat, nodules, sore throat, tense throat, throat fatigue, hacking cough, and voice break. Strident voice indicative of hearing loss falls in the same category.

MUTTERING VOICE. Phonation with the false cords

causes a muttering voice. These false cords also interfere with the vocal cords in "twang," where only short thin edges of the vocal cords are left free to vibrate; in the raucous or gravel voice of hawkers, where the vocal cords and false cords slap together; and in breathy voice heard in deaf schools or softly in the timid, where the glottis never completely closes but flutters in phonation.

Constrictive interference by the musculature above the glottis, whether it be by the false cords or the coughing sphincter above them is relieved by acquiring a laryngeal stance in which the whole top of the larynx above the glottis is opened up. Laryngeal action is involuntary and therapy necessitates the use of exercises based on primitive but voluntary physiological action which, in its spread, entails the effects wanted at the top of the larynx. A laryngeal stance which will open these areas can be developed by partially yawning (Voelker, 1935). The open stance will also occur while the chin is held so that it points directly upwards in what is known as the bronchoscopic position (Voelker, 1938). While the subject is in some such exaggerated stance, he is instructed to gain auditory control of the resultant quality.

GUTTURAL VOICE. Guttural voice results from muffling the glottal sound in the throat behind the tongue. Exercises are designed to (1) contract the underchin muscle and (2) project the jaw.

MUSHY VOICE. The degree of lip and jaw opening is inversely a function of age, which accounts for the clarity of children's speech in contrast to adult, and if the jaw opening is too small, as in individuals concealing dental blemishes, a weak mushy voice results.

SUMMARY

Speech disorders can be separated into seven convenient categories for discussion even though no subject has ever been found who presented only one of these seven. Phoniatrists in clinics for speech difficulties tend to settle on one of these seven possible working descriptions of the subjects' behavior and think of it as the major and first problem of therapy. The extensive overlapping with the other six defects is considered as presenting problems secondary in importance and order of therapy.

READING REFERENCES

Bender, J., and V. A. Fields, *Principles and Practices of Speech Correction.* New York: Pitman Publishing Corporation, 1938.

Fröschels, E., *Speech Therapy.* Magnolia, Mass.: Expression Co., 1933.

———, and A. Jellinek, *Practice of Voice and Speech Therapy.* Magnolia, Mass.: Expression Co., 1941.

Seth, G., and D. J. Guthrie, *Speech in Childhood; Its Development and Disorders.* London: Oxford University Press, 1935.

Stinchfield, S., *Speech Disorders: A Psychological Study of the Various Defects of Speech.* New York: Harcourt, Brace and Company, Inc., 1933.

Thonssen, L., and E. Fatherson, *Bibliography of Speech Education.* New York: The H. W. Wilson Company, 1939, Chap. 5, "Speech Pathology and Correction."

Travis, L. E., *Speech Pathology; A Dynamic Neurological Treatment of Normal Speech and Speech Deviations.* New York: Appleton-Century-Crofts, Inc., 1931.

Van Riper, C., *Speech Correction; Principles and Methods.* New York: Prentice Hall, Inc., 1939.

Weisenburg, T., and K. McBride, *Aphasia, a Clinical and Psychological Study.* New York: The Commonwealth Fund, 1935.

West, R.; L. Kennedy; and A. Carr, *The Rehabilitation of Speech; A Textbook of Diagnostic and Corrective Procedures.* New York: Harper & Brothers, 1937.

75. HEARING DIFFICULTIES

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INCIDENCE

The exact number of persons with impaired hearing in the United States is not known, published estimates varying from 6 to 20 million for the population as a whole, and from 1,600,000 to 3,000,000 for school children. Of 606,549 pupils tested in an audiometric survey in New York City, 3.71 per cent had a hearing impairment of 9 decibels or more in both ears. Another survey indicated a 3.8 per cent incidence (Report of the N.Y.C. Board of Education Sub-Committee on Acoustically Handicapped Children, 1941). This means that there are about 25,000 children in New York City alone who cannot hear what is said to them unless the speaker is nearer than two-fifths of the normal distance. Tests of 4,112 pupils by the Bell Telephone Laboratories revealed a similarly serious two-ear impairment in 3.2 per cent of the children, and a one-ear impairment in 11.2 per cent. Subsequent otological examination of a representative sample of these children by Fowler revealed "definite ear troubles, such as running ears, catarrhal deafness, nerve deafness, and adhesions and congestions of the ear drum" in 56 of 57 children examined (Fletcher, 1926).

The relationship of the incidence of auditory impairment to socio-economic status is particularly noteworthy. In one audiometric survey of 3,163 children the incidence of deafness was 25 per cent in a school in the foreign section, where presumably lack of means and of education resulted in poor hygiene and little or no medical care. In another school, where the enrollment was drawn about equally from foreign and middle-class American groups, the incidence was 15 per cent. Among children from middle-class families only, it was 10 per cent, and in private schools it was less than 1 per cent (US Bureau of Education, School Health Studies No. 13, 1927).

CAUSES OF DEAFNESS

The psychologist who desires to work intelligently with the deaf must familiarize himself in detail with the anatomy and psychophysiology of audition. A few brief facts on the etiology of deafness are here outlined because they are pertinent to the psychologist's problems in dealing with parents and children.

MIDDLE-EAR INFECTION

The most common cause of acquired deafness in children is middle ear infection—*otitis media.* Infections such as scarlet fever, measles, and diphtheria, all of which invade the throat, frequently sweep up through the Eustachian tube to the middle ear and lead to otitis media.

The popular fallacy that a "running ear" will soon right itself is responsible for much middle-ear deafness. Psychologists who work with parents may well point out, in discussing parental reluctance to permit surgical perforation of the eardrum for drainage purposes, that whereas a spontaneous rupture may or may not select a part of the drum important for hearing, the artificial incision can be deliberately located in the safer portions. Such incision materially reduces the risk of mastoiditis as well as deafness. Many cases of hearing impairment appearing in adult life owe their origin to neglected middle-ear troubles of younger days.

Crowe's finding that removal of adenoids improves impaired hearing for high tones in children, led to his discovery of the common occurrence in children's ears of enlarged masses of lymphoid tissue partly or completely obstructing the Eustachian tubes. He claims that this condition, if untreated, is a common cause of middle-ear deafness in adults, and that radium or X-ray treatments, by disintegrating the obstructing lymphoid tissue has restored the hearing to normal in several thousand children.

Fisher (1946) has similarly treated 1200 patients, and concludes that Crowe's procedure is an important preventive of conduction deafness.

OTOSCLEROSIS

Another, and more discouraging auditory disease, is otosclerosis. It consists of a chronically progressive hardening of the ear tissues, beginning with a spongy-bone formation at the oval window of the inner ear. When this spreads to the footplate of the stapes a conduction deafness appears which gets progressively worse. It seems to be hereditary, usually begins in early adulthood, and is probably responsible for more than half the cases of adult deafness. The fenestration operation recently proposed by Lempert to alleviate this condition seems to have been helpful in selected cases but requires further evaluation.

INNER-EAR DEAFNESS

Inner-ear deafness, also called perceptive or nerve deafness, may be produced by spinal meningitis, mumps, typhoid, pneumonia, scarlet fever and diphtheria, and by blood-transported products—salvarsan, arsenic, quinine, lead, coal-tar dyes, and similar occupational poisons. It may likewise be an end-result of overintense sound stimulation, as is evidenced by experiments on animals, by occupational diseases like boilermakers' and weavers' deafness, and by human experiments on stimulation deafness (Max, 1935).

DEAFNESS AND EDUCATIONAL RETARDATION

Educational studies of hard-of-hearing children have revealed striking facts. School records showed that the 57 deafened pupils examined by Fowler had repeated 67 classes, whereas a group of 57 pupils of normal hearing, selected at random in the same school and grade, had repeated only 18 classes. A similar study of all retarded pupils in another city "showed that of children who had to repeat grades, there were three and one-half times as many hard-of-hearing as those of normal hearing" (US School Health Studies, No. 13, 1927).

Thus, a considerable number of the million or more school children failing each year may be suffering from unrecognized hearing defects directly responsible for their retardation. The individual injustices and psychological tragedies entailed by such unrecognized deafness are not difficult to imagine. One child who had been pronounced subnormal in intelligence by his school and normal in hearing by an "ear specialist" was found on more careful measurement in a psychology laboratory to be seriously handicapped in the upper auditory range and mentally above normal (Dunlap, 1922). Numerous instances of this kind have come to light. Since there is frequently enough residual hearing in such cases to enable the child to recognize his name and a minimal selection of common words, the deafness is not identified as such by unobservant elders. It is clear that every psychologist who deals with retarded children must be on the lookout for subnormal hearing as a possible major cause of the child's difficulties.

EFFECTS OF DEAFNESS ON THE PERSONALITY

Even more serious than educational retardation is the development of personality characteristics among deaf children that seriously handicap their social adjustment and their own happiness.

The New York Bureau of Child Guidance reports that in a single year forty-five of the children referred for psychological study or psychiatric treatment were found to have severe hearing losses which had not been detected or were not known to their schools and which materially contributed to the maladjustment.

The child who suffers from oncoming deafness may, as a result of losing rank in school and leadership in play, become suspicious, seclusive, and unsocial, and gradually lose his capacity for healthy emotional adjustment even within the confines of the family circle. A deafened child is more likely to be neglected by siblings and others about him and easily develops the insecurity of the unwanted. He may become overaggressive, or employ some other attention-seeking device. If he is overprotected, his resultant dependency again leaves him maladjusted. On the other hand, deafened children sometimes tend too readily to yield to inferiority feelings, and must be roused out of the habit of accepting defeat.

But such personality effects are not unique among the deaf. In a study done in our laboratory, responses from deaf children on standardized personality inventories were not different qualitatively from the responses of a matched and comparable group of hearing children. The deaf children did have more problems, but these could not be classified into any categories peculiar to the deaf (Springer and Roslow, 1938). Nor is the greater incidence of difficulties surprising in view of the problems of the parents. For example, in a mental hygiene project

on the deaf we found that 22 per cent of a group of deaf children had run away from home one or more times, as compared with only 6 per cent of a matched group of hearing children of the same intelligence, age, nationality, and parental occupational level. And this difference was not confined to the boys: Of 172 deaf girls studied, 45 had run away from home, as compared with only 19 runaways among the matched group of hearing girls (26.2 per cent as against 13.9 per cent). A possible clue as to causes of this difference is provided by another comparison. In this same project, parents were more frequently characterized by the deaf children as subject to temper outbursts than were the parents of the hearing controls (41 per cent as against 16 per cent); as oversevere by 37 per cent of the deafs against 6 per cent of the hearing children; and as showing favoritism to another sibling by 42 per cent of the deaf as contrasted with 16 per cent of the hearing (Max, 1936). Because of the differences in children's standards of judgment, sweeping conclusions from such comparisons are unjustified; but it became evident, not only from the above findings, but also from visits to homes that the parents of deaf children frequently need psychological guidance as much as the children themselves. The nature of the guidance will depend upon the individual case, but the emotional mechanisms involved are not different from those encountered in the hearing and require no essentially different treatment.

AUDIOMETRY

NEED FOR EARLY TESTING

Since subnormal hearing, so often unsuspected, may produce cumulative educational retardation and personality maladjustment of seriously handicapping proportions, the first step in rectifying the situation is the detection of the impairment as early as possible. The older of the standardized methods of discovering and measuring auditory loss are described in Whipple's Manual (1921). The most useful technical contributions in this phase of our war on deafness, however, were the Western Electric audiometers (Fletcher, 1925). These instruments provide an accurate, sensitive, and expeditious method of detecting and measuring hearing loss.

Since most deafness begins during childhood, the following items should be part of every child-health program. (1) An audiometric test and an examination with the electric nasopharyngoscope (for Eustachian lymphoid-tissue) should be a regular part of periodic child-health examinations. (2) Parents should insist on a careful audiometric examination of their children after each of the diseases mentioned above as possible precursors of ear trouble. (3) Laws already adopted in certain states require physicians to report the names of every deaf and hard-of-hearing child encountered in their private practice to an appropriate state agency, for subsequent follow-up work. These laws should be made universal. (4) An annual screening test employing a group instrument like the Western Electric phonoaudiometer (Fletcher, 1926) should be required in all schools. For hypacusic children revealed by such a screening test there should follow an individual audiometric and otological examination, and a remedial medical and educational program.

The cost of providing such a testing and follow-up program would not be prohibitive. Statistics on one group of 349 hard-of-hearing children indicate that 211 repeated grades 441 times, at a cost of $26,460. In another school, of a group of 136 hypacusics, 84 repeated 172 grades, at a cost of $10,800. In San Francisco, the 65 grade repetitions of 27 hard-of-hearing children cost the city $4,097. The reduction in the number of grade repetitions which would result from an adequate audiometric and follow-up program, would largely cover the cost of this program.

TESTING THE PRESCHOOL CHILD

But it is in the preschool period that early detection of subnormal hearing may be of greatest preventive value. Though there is a crying need for a good test of auditory sensitivity applicable to infants and very young children, no such test is thus far available. Hence psychologists must caution parents to be on the alert for the following early signs of impaired hearing: (1) failure to move the head in response to a sudden loud sound near one ear; (2) absence of pupillary contraction in response to sound (Caution: response to vibration must not be accepted as response to sound.); (3) difficulty in localizing the direction of the source of the sound; (4) "pointing" one ear in the direction of the speaker or the source of the sound; (5) overfrequent pointing and use of the hands by the child in making his wants known; (6) "blank" facial expression, listlessness, inattention, and frequent mistakes in carrying out simple directions; (7) delayed speech and vocabulary acquisition; (8) unusual

mistakes in pronunciation of common words; (9) peculiar qualities of the voice, lack of normal intonation patterns and resonance; (10) frequent failure to respond when called; (11) requests for repetition of words; (12) buzzing in the ear or noises in the head; (13) physical symptoms, like discharging ears, earache, tenderness or itching or swelling in or about the ear, faulty equilibration, vertigo, or nystagmus. Children with these symptoms should be given an early and careful examination by an otologist.

Other possible early indices of deafness for use with infants and very young children might be developed on the basis of the conditioned reaction, the psychogalvanic, electromyographic, and electroencephalographic responses to applied sound stimuli. Research on these possibilities is very much needed.

SPECIAL EDUCATION OF THE DEAF

The initial achievement-handicap of four years or more with which the deaf child starts his school life is a result not of deficiency in innate intelligence but of limitation in educational opportunity due to language deprivation. When total or partial deafness is discovered, special education must be started at once, if serious retardation is to be avoided. Lip-reading instruction, specialized speech-training, and full utilization of residual hearing should be begun early. Progressive schools for the deafened are now admitting children at three and even two years of age.

The report of the Trenton School Survey that "deafness retards the development of all the mental processes" is essentially untrue, or would be so if our educational methods were more efficient. To compensate for the initial retardation, teaching of more than average efficiency and specialized curricular content are imperative, and many schools for the deaf make such teaching available. Some, however, still follow the regular public school syllabi, with but little revision.

It is most encouraging to find that all deaf schools have provision for vocational training. In some cases, however, vocational aspects of the curriculum likewise need revision. An occupational survey among the deaf and hard-of-hearing indicated that 972 of 1702 graduates were not following the trade laboriously taught them while in school (Clarke, 1934). This may be a result of lack of adequate vocational guidance rather than of the curriculum, and a control comparsion with "hearing" schools would be required before conclusions can be drawn. According to the White House Conference, however, "rapidly changing industrial processes have left many deaf schools teaching obsolete operations which still have manual training value but do not prepare for actual employment" (1933).

METHODS OF TEACHING THE DEAF

ORAL VS. MANUAL

Much dogmatism has been shown in the controversy over the manual versus the oral method of instruction. Since deaf people must live in a speaking world where sign language will do them little good, the schools for the deaf rightly emphasize the importance of speech acquisition and comprehension. However, there may be some question as to the wisdom of insisting on the oral method exclusively and prohibiting all sign language and finger-spelling—a practice which is followed by all but one of the US day schools. An unfortunate effect of this policy was illustrated by the case of an intelligent graduate whose speech after 12 years at an "oral" school was incomprehensible to 95 per cent of his auditors, and whose lip-reading was inadequate for successful orientation in a speaking environment. Having obediently shunned the bootleg sign language of his schoolmates, he could not even communicate satisfactorily with his fellow deaf workers, except by writing. The resulting withdrawal into himself and his obvious envy of the more cheerful associations between his deaf colleagues, led me to enlist the aid of one of his associates who gave him several weeks' practice in manual communication. As a result, he became a more socially successful and visibly happier individual. Just as some hearing students cannot cope with mathematics or languages easily and successfully, it is quite conceivable that the oral method is unsuitable for certain deaf students. This is confirmed by the conclusion of the National Research Council's Survey of Schools of the Deaf (1927) that "no one method is superior to the others as regards educational achievement of the pupils, when basic intelligence is taken into consideration."

SELECTIVE AMPLIFICATION AS A TEACHING AID

In utilizing the residual hearing of deaf pupils for speech teaching, more use might be made of the principle of selective amplification to compensate for the individual student's auditory deficiencies. Compensated amplifiers with adjustable dials can intensify the sound-frequencies in which a given

pupil's hearing is weak; and, since speech instruction employing residual hearing must be largely individual, the teacher could adjust the dials to meet the student's needs. This adjustment is quite feasible for the nonportable amplifiers of the classroom, and would materially decrease the time-consuming and patience-trying repetitions now required of the speech teacher.

SUBSTITUTE SENSES FOR SPEECH INSTRUCTION

Two interesting suggestions have been made for using senses other than hearing in teaching speech to the deaf.

TACTUAL AND VIBRATION SENSES. The possibility that the deaf may be taught to hear through the finger-tips has been claimed by Gault. He stated that by placing the finger-tips upon an electromagnetic vibrator activated by amplified voice currents from a microphone, words can be distinguished and perceived. One early subject was reported to have acquired a vocabulary of twenty-three hand-recognized words in this way, and to have succeeded within the range of this vocabulary in perceiving entire sentences.

Since this was a hearing subject, who might possibly have identified the words by faint auditory cues, the writer repeated Gault's experiment on eight totally deaf subjects. These were given hundreds of trials at vibratory perception of mono- and polysyllabic words through the fingers; but while short words could be distinguished from longer ones and differences in loudness of specific words could be perceived, any identification of individual words proved quite impossible. In view of this completely negative result and in view of the fact that the frequency-range of the vibratory sense is too restricted to serve as a possible vehicle for speech, "fingers instead of ears" is probably an idle hope. The possibility, however, that the tactual and vibratory senses may prove helpful to the deaf in the perception and control of rhythmic patterns of vocalization needs further investigation.

VISION. Goldstein (1933) suggested and used an oscilloscopic method of teaching speech to the deaf, and reported good results. This experiment, too, was repeated in our laboratory on eleven deaf subjects of varying ages and intelligence. Various elementary sounds were spoken into a microphone and the amplified voice currents were fed to a cathode-ray oscillograph and photographed. Using a given sound photograph as a model, the deaf subjects tried to enunciate sounds into the microphone in a way which would reproduce the photographed wave forms on the oscillograph screen. The results clearly indicated that, except for a few simple sounds, the teaching of speech to the deaf by the direct oscilloscopic method is impracticable and that more educational return for time and effort expended can be derived from other more orthodox procedures (Within the last year, an indirect oscilloscopic method has been developed by the Bell Telephone Laboratories (Potter et al., 1947); it shows considerably more promise than the earlier procedure).

HEARING AIDS

HEARING AIDS AND THEIR INTELLIGENT SELECTION

One important contribution that psychologists can make to the hard-of-hearing individual is to shorten the latent period between the time when he admits the hearing impairment to himself and the day when he is willing to wear a hearing-aid. Just why there should be greater reluctance to wearing hearing-aids than to wearing glasses is a psychological problem in itself. The answer simply may be that people began wearing seeing-aids longer ago than hearing-aids, and that exactly the same prejudice originally attached to glasses. Pointing this out to the sufferer may help. In any event, it is a prejudice that takes valuable time to overcome, time needed for preserving the natural voice and social competence of the deafened.

Hearing-aids are frequently bought on the enthusiastic recommendation of another wearer, on the basis of high-pressure advertising and salesmanship, or of the pleasantness of the transmitted sound. Unfortunately, as the low-frequency booming of millions of radios testify, lower pitched sounds seem to be frequently preferred to the higher, and an instrument may sound more "pleasant" to some only because it is unable to transmit the higher pitches. Now, the "understandability" or the intelligibility of speech is dependent upon the faithful reproduction of these high frequencies, which serve as the vehicle for the consonants: With the lower pitched hearing-aid the wearer may have difficulty in distinguishing between such consonants as *f, s, st, th,* and *ch,* and hence may mistake "phone" for "bone," or "tone," or "stone," etc. The instrument chosen must be determined by the specific nature of the deafness, that is, by the relative strengths and weaknesses in the frequency range of the better ear.

These relative strengths and weaknesses are accurately revealed by the audiometer test, which likewise

reveals, when carefully administered, whether the impairment is conductive deafness (for which a bone conduction receiver is usually more suitable), or perceptive deafness (for which an air conductor is better), or a mixture of the two. A properly interpreted audiogram also identifies the cases which cannot be helped by any existing type of hearing aid.

The recent development of hearing aids employing vacuum tubes opens up an entirely new vista in this field. Enough scientific knowledge is available to make possible a practicable design of the four or five models of hearing aids required to meet the specific needs of most wearers. The prevailing prices of most hearing aids are high, and a forward-looking philanthropist or businessman who would finance the large-scale manufacture of these scientific models and make them available at prices within the means of the average family, would bring inestimable happiness to thousands of people who need hearing aids for normal living but cannot now afford them. The larger sales-volume would soon make the project financially sound and self-supporting.

In the meantime, the person in need of a hearing aid should be referred to an otologist, and to the local League for the Hard-of-Hearing where he can try out most of the existing commercial devices. The local branches of the League for the Hard-of-Hearing are rendering invaluable service, not only by assembling and making available the many different kinds of instruments, but also by their intelligent educational program. They also supply standardized Intelligibility Lists to facilitate the choice of the instrument which will yield optimum understanding of speech.

THE PSYCHOLOGIST AND THE OTOLOGIST

In dealing with the problems of auditory deficiency in the past, the tendency has been to stop with audiometry and pencil-and-paper psychometrics. It is clear that these must be liberally supplemented by otological, psychological, and psychiatric services of a more personal kind. The ability of the psychologist and psychiatrist to cooperate with each other for the benefit of the child has been abundantly demonstrated in child guidance work throughout the country. Neither do the spheres of the otologist and psychologist overlap, and an intelligent practitioner in either profession will recognize his own limitations and call for the other's help whenever it is needed.

READING REFERENCES

Davis, H., et al., *Hearing Aids.* Cambridge, Mass.: Harvard University Press, 1947.

Frampton, M. E., and H. G. Rowell, *Education of Handicapped.* Yonkers: World Book Company, 1938.

Pintner, R.; Jon Eisenson; and M. B. Stanton, *The Psychology of the Physically Handicapped.* New York: F. S. Crofts & Co., 1941.

Potter, R. K., et al., *Visible Speech.* New York: D. Van Nostrand Company, Inc., 1947.

76. VISUAL EFFICIENCY

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An appreciation of the role of vision in human behavior is, at least in its broadest aspects, possessed by everyone. Little imagination is required to evaluate its significance in our daily lives, yet, a reasonable understanding and appreciation of the factors and components that go to make up a total visual act are possessed by relatively few.

The phenomena and problems of vision are myriad and challenging. For years they have consumed the attention of men in practically every major field of science. Perhaps no other single aspect of human behavior has been subjected to as intensive and varied an investigative approach. For the psychologists, investigations have centered principally upon the problems of visual function and perception. In recent years the clinical aspects of these problems

have received increasing attention. One need not look far, perhaps, to ascertain the factors responsible for this trend. The complexities of present-day civilization would seem to have placed demands upon the use of our eyes far greater than people living, let us say, a century ago. People read more; more people read. Industrial and commercial processes have become increasingly complex and require long hours of close visual concentration. One travels in rapidly moving vehicles, in congested traffic areas—a premium is placed on depth perception and judgment of space. One need not look far to discern the origins of a term now common in clinical usage, "visual efficiency."

Although an understanding of the anatomy and physiology of the eye is necessary in order to deal with these problems, primary emphasis in the discussion to follow will be placed upon those aspects of visual performance which have immediate significance for a clinical evaluation of visual efficiency. With few exceptions, all of the procedures to be described have been derived from or are a part of the armamentaria of the ophthalmic professions.

VISUAL ACUITY

Visual acuity is the term used clinically to express the measure of an individual's keenness of sight. Optically, it is defined as the resolving power of the eye. From the psychological or functional point of view, however, it is better defined as a measure of one's ability to discriminate two discrete object points as being discrete.

The accurate measurement of visual acuity is an intricate problem even for the laboratory technician. For all practical clinical purposes, however, it is accomplished by the use of the standard Snellen chart of letters or some modification of it. The measurements may be given in terms of the reciprocal of the visual angle subtended at the eye by the smallest letter or test object discriminated at a given distance, or by the Snellen notation. Of these, the Snellen notation is by far the more widely employed clinical measure of the acuity.

Measurements of visual acuity, unless otherwise specified, refer to the keenness of the subject's distance vision since, for distance vision the normal or emmetropic eye will have its accommodating (focussing) mechanism at "rest." The Snellen chart is designed to be used at a distance of 20 feet. This distance is for all practical purposes satisfactory for the reason that, optically, little or no focussing adjustment is required to form a sharp image in the emmetropic eye. The letters or characters on the test chart are so designed that their details, such as the breadth of the lines forming a letter, as well as the spaces between them, subtend an angle of one minute at the eye when viewed at a given distance. The total height and breadth of a letter each subtends a visual angle of 5 minutes. In this system a visual angle of one minute is taken to be the basic unit of discrimination for the normal eye. By constructing letters of such size that these angular requirements are maintained when the letters are viewed at greater or lesser distances than 20 feet, and placing these letters at the testing distance of 20 feet, a rapid and relatively accurate appraisal of the visual acuity may be made in a quantitative manner. The acuity is recorded in the form of a fraction, the numerator of which refers to the test distance and the denominator refers to the distance for which the letters have been constructed so as to yield the unit angular requirements when viewed at that distance. For example: 20/20 means that one has an acuity such as will enable him to discriminate letters having unit dimensions at a distance of 20 feet. An acuity recording of 20/40 indicates that letters of a size normally distinguishable at a distance of 40 feet must be placed at half that distance, or 20 feet, to permit discrimination. A convenient way of expressing this fraction, 20/40, is to say that the smallest letter the subject can see at 20 feet is one which he should normally be able to see at 40 feet.

Of the many factors and conditions which can influence one's visual acuity, the following are perhaps the most significant: the refractive system of the eye, the clearness of the ocular mediae, the health of the visual apparatus, and the intensity and distribution (glare) of illumination. Refractive errors are by far the most frequent causes of poor visual acuity. These errors are the familiar ones of hypermetropia (farsightedness), myopia (nearsightedness), and astigmatism. Various combinations of these errors may be present.

It should be borne in mind that a visual acuity test does not determine the nature of the refractive error that may be present, although it may and frequently does provide a clue. A common misconception is that a visual acuity of 20/20 necessarily means that one's eyes are normal. An individual who is quite farsighted, for example, may be able to read the 20/20 line of letters on the test chart. He does this by accommodating his focus for the test-chart distance. In the normal eye such accommodation should not be necessary. Some nearsighted or astigmatic individuals

may be enabled to obtain better visual acuity by squinting their eyelids close together to form a slit-like aperture, thereby cutting out some of the optical aberrations in their eyes and increasing their depth of focus.

Visual acuity tests are also given for near vision. These are primarily useful for checking the ability to accommodate for a close fixation distance. Again, letters or words are used and constructed of various sizes to be legible at certain distances. Not infrequently an individual with normal distance vision may, as a result of a debilitating disease or condition, be unable to focus his eyes in order to see clearly at reading distance. Normally a loss of accommodating power occurs with increasing age such that at the age of 40 to 45 years one requires additional optical aid in the form of glasses to read and perform tasks necessitating near visual fixations.

Many visual acuity charts include a check test for astigmatism. This usually takes the form of a fan of radiating black lines or spokes of equal thickness. The individual with astigmatism will see some of the lines to be blacker and more distinct than the others. This is a consequence of the fact that, in astigmatism, the refractive power of the eye is not the same in all meridians.

Many interesting psychological problems arise in vision testing. These deal, for example, with the evaluation of the visual functions of the very young child, illiterates, malingerers, and the hysterically blind. For such purposes many ingenious testing procedures have been devised.

BINOCULAR MOTOR COORDINATION

Clear binocular vision of an entire large object or group of objects cannot be obtained without coordinated movements of the eyes, because the foveas, which are the retinal areas of sharpest vision, are very small. It is to direct the foveas to alignment with the various details in the visual fields that the eyes must be moved in strict coordination, a coordination that obtains normally, even if one eye is covered. The mere act of obtaining and maintaining binocular single vision involves complex patterns of response which include the activity of the entire ocular musculature at all times. It should be pointed out that both eyes are directed as one organ by the various neuro-muscular mechanisms. While these mechanisms are present normally at birth, their coordinating ability is almost entirely the result of maturation and use.

The mechanism whereby the optical power of the eye is altered so that objects may be seen clearly when viewed at different distances from the eye is called "accommodation." The ability to focus the eyes adequately and quickly for the various distances within the range of human vision is a principal determining factor in ocular comfort and visual efficiency. The relation of this function to that of the coordinated movements of both eyes is one of the major problems in physiological optics and a knowledge of this status is necessary to proper diagnosis of a given case.

Tendencies of the eyes to deviate or to manifest poor binocular coordination may be far more exacting in their demands and disastrous in their effects upon the nervous system than conditions of actual deviation (e.g., strabismus) where binocular single vision is unattainable.

Accordingly in the examination procedure it is pertinent to investigate the function of the binocular mechanism. The methods employed involve the determination of the ocular muscle imbalance and compensatory functions (heterophorias and fusional amplitudes respectively) and the nature of the relationship existing between accommodation and convergence.

Heterophorias represent innervational deficiencies or excesses of binocular motor coordination. They become manifest as actual deviations when binocular single vision is dissociated. While this is usually accomplished by means of instruments a simple procedure may be employed to illustrate the principle: Hold a card before one eye of a subject so as to occlude vision in that eye and direct him to look at a point on your forehead. Remove the card and notice carefully whether the eye that had been covered now moves to fixate the spot on your forehead. If the eye moves in, for example, it means that that eye had been deviated outward when not used in conjunction with its partner.

Since heterophorias become manifest when binocular fusion is absent, some source of innervation or convergence function must be responsible for compensating them while binocular single vision is maintained. The additional convergence (or divergence, as the case may be) required has been termed fusional convergence and is supposedly supplied by innervation from centers functioning specifically in the interest of binocular single vision. It is expected, then, that with a greater degree of heterophoria there is required a greater degree of fusional compensation. For this reason the significance for visual efficiency of particular heterophoric conditions found in a given case is dependent largely upon the ability of the

fusional mechanism to compensate for them. Inadequate compensation may result in symptoms of ocular distress, perhaps occasional double vision or even suppression of vision in one eye.

The extent to which this fusional mechanism can be used is determined by the fusional amplitude or prism convergence tests. With these tests one measures the maximum relative angular deviation which the eyes can maintain while binocular single vision is maintained for a given distance of fixation. In this way the functional resources of the convergent, divergent, and vertical fusional movements and functions can be ascertained.

Poor binocular coordination also may be the result of uncorrected refractive errors since excessive demands upon the function of accommodation may reflexively disturb convergence functions.

The most marked instance of a lack of binocular coordination, of course, are the subjects with strabismus (crossed eyes). In strabismus, because of the deviation of one eye with respect to the other, the lines of sight do not intersect at the object fixated. Under such conditions the vision of one eye must be suppressed or double vision will result. Here one frequently finds, also, a personality problem that requires careful handling.

BINOCULAR SINGLE VISION (SPATIAL LOCALIZATION)

Attention to this aspect of visual function, from the clinical point of view, has increased tremendously in recent years. Present-day civilization places many demands upon our ability to perceive depth and localize objects in space accurately. This ability necessitates the fully coordinated use of both eyes. When the use of the two eyes together is difficult or impossible because of disease, injury, poor vision, or inadequate coordination, then monocular vision may result through suppression of vision in the unused eye.

While uniocular vision quite adequately informs us of the nature, characteristics, and directions from us of the objects that surround us, it does not provide us with determinants sufficiently unequivocal to inform us exactly about their distances relative to each other and to us. For this purpose, stereoscopic vision is required.

Briefly, the basis of stereoscopic vision is the blending or fusion of the disparate images of an object viewed by the two eyes. Because our eyes are separated by a distance of 2 or 3 inches, slightly different views of the same object are obtained by each. If one had twin cameras, separated by a distance of 3 inches, and took photographs of some object, he would obtain two very similar pictures. If the films were superimposed it would be discovered that, while the boundaries of the films fit together exactly, the details within the pictures do not match. In other words, the inner patterns are not congruent. These incongruities or disparities between the images produced by the two cameras are similar to the disparities between the images found in the two eyes. For the person with normal binocular vision these disparities, however, are not a detriment. By resolving them he uses them as the basis for depth perception in binocular spatial localization. So accurate can this resolution be that differentiations in depth can be made that are smaller in angular magnitude than are the finest visual acuity discriminations.

In normal binocular vision, that is, where there exists between the images of the two eyes the incongruity normally to be expected and geometrically predictable from the separation of the eyes, both the uniocular clues (form, size, perspective, for example) and the binocular clues (disparities) for spatial localization may be said to be in agreement. If, however, an individual has difficulty resolving the binocular disparities or receives anomalous disparity clues he will have difficulty in accurately localizing objects in space relative to each other and to himself. Under such conditions, he may resort to uniocular vision and tend to suppress vision in one of the eyes.

The discovery of anomalous incongruities and their influences upon spatial localization is a matter of comparatively recent date. To them has been applied the term aniseikonia, designating the defect for the clinician. Aniseikonia is defined, clinically, as that condition of the binocular visual apparatus in which the ocular images are unequal in either shape or size, or both. By ocular image is meant the final visual impression obtained, so that its effective size depends, not only on the dioptric image formed on the retina of the eye, but also on the distribution of the receptive retinal elements and the physiological and cortical processes involved. Accordingly, it follows that aniseikonia may be caused by an anomaly in any one or combinations of these elements involved in the formation of the ocular image.

Many of the clinical symptoms of aniseikonia are similar to those noted in other types of visual disabilities although some cases, in addition, are aware of various types of spatial distortions, such as slanting of floors, tilting of objects, and fluctuation in apparent height or distance of objects.

With the discovery of anomalous incongruities and

the development of means for measuring and correcting them have come newer conceptions of the nature of spatial perception. Among these is the recognition that the possession of accurate depth perception does not necessarily carry with it the ability to estimate accurately both the absolute position of objects relative to the observer and relative to each other. The common tests designed and used for the measurement of depth perception, such as the peg test and various stereoscopic tests, provide simply a basis for judgment of the distance between objects. A more complete test of one's spatial perception requires at present much more elaborate instrumentation which is still in the laboratory stage of development. Present research appears promising, however, for a more simplified application of the techniques in the future.

PREVENTIVE AND CORRECTIVE MEASURES

It becomes the duty of the clinician to give advice and instruction upon the hygiene and proper use of the eyes, upon proper illumination conditions for reading and work, and to aid in the development of proper reading habits. This advice and instruction must always be adapted for the individual case and requires careful analysis of the individual's visual requirements.

A movement that is rapidly gaining momentum in the field of vision testing concerns the development and application of visual screening tests. These are batteries of short tests designed to detect quickly those defects and anomalies which enter as principal deterrents to efficient visual performance. Extensive fields for application of these tests exist in our schools, industries, military forces, motor vehicle, and aviation licensing commissions, to mention a few. They provide indications for the need of more complete ocular attention and correction, and permit the segregation and classification of individuals on the basis of their ability to perform certain visual tasks.

The principle measures employed for the correction of visual defects and the improvement of visual efficiency include the application of lenses and optical devices, orthoptics, and surgical procedures.

The vast majority of all refractive errors may be corrected by the use of spectacle lenses. Certain types of errors, such as highly irregular astigmatism and defects produced by malformations of the cornea, by virtue of their optical complexity cannot be satisfactorily corrected with glasses. For these, contact lenses provide the best possible correction. In cases of subnormal vision, due to disease or injury of the visual apparatus, telescopic lenses enable the individual to perceive objects and forms and even to read by virtue of their provision of considerable magnification. Interesting problems in learning and perception arise in this field.

Certain occupations, because of the visually confining nature of the tasks involved, place a tremendous burden upon the ocular apparatus. Long hours of close visual fixation and concentration, such as are required in some tasks (e.g., textile workers, inspectors, and precision machine operators), present conditions for which the average pair of eyes is not too well adapted. Distressing symptoms of headaches, nervousness, and fatigue develop with a consequent result in loss of man-hours and efficiency in production. For such tasks, occupational glasses may be provided. These consist essentially of a combination of lenses and prisms so designed that they relieve the eyes of much of the excessive accommodation and convergence required by the short fixation distance. Where excessive illumination or injurious frequencies of light are present, as in arc-welding, absorptive filter lenses provide protection. The application of goggles as a safety measure is, of course, well recognized.

While some of the defects of binocular motor coordination are rectified after the refractive error has been corrected, many anomalies of coordination may persist or remain unaffected. For their correction, orthoptic training may be advisable. Orthoptics, or orthoptic procedures, are essentially reeducational and training procedures for the development of adequate, smooth, and rapid binocular coordination and perception. They involve the use of specialized instrumentation and techniques for the training and rehabilitation of various of the ocular functions. While it is true that certain types of eye exercises have been prescribed for many years it is only comparatively recently that the beginnings of a systematic approach to orthoptic problems has been made. With the establishment of orthoptic clinics and the founding of training schools for orthoptic technicians, both here and abroad, there has occurred a relatively abrupt spurt in the growth of this field.

In its wider sense, the study of orthoptics is the study of the clinical aspects of single binocularity. More specifically, however, the problems of single binocularity divide themselves into two general classifications: first, the problems of binocular single vision, and second, the problems of binocular motility and coordination. The former group of problems relate primarily to the visual or perceptual

aspects of binocularity. Herein are contained the problems of space and depth perception, stereopsis, fusion, and their disturbances. These disturbances take such form as constant or periodic double vision, fluctuations in visual acuity, distortions or lack of spatial localization (aniseikonia) and depth perception, and inhibitory or suppression phenomena. The second group consists of those problems which are related primarily to the various aspects of ocular motility and coordination that are involved in binocular fixation. Such problems as convergence, divergence, and concomitancy of ocular movements and their disturbances belong in this group. These disturbances include the various forms of strabismus or squint, the various disorders of innervation (insufficiencies and excesses), and faulty or immature habits of coordination.

It is clear that these two general classifications of problems cannot be treated in isolation to one another and that there is considerable overlapping of function. For example, the basic orthoptic problem in the correction of strabismus involves the establishment of normal retinal correspondence—a problem in binocular perception. In instances of ocular muscle imbalance orthoptic training may restore or develop the ability of the binocular fusion mechanism to cope with it. The procedure involves developing the fusional amplitudes and the smoothness and quickness of binocular coordination.

Surgical procedures are to be recommended in cases where there is little likelihood of success with other measures. The utilization of orthoptics in conjunction with operative procedures has proved most effective in providing both a functional and cosmetic result. In certain cases of strabismus where there can be no hope for the establishment of binocular single vision, surgery can provide a cosmetic result, the psychological value of which should not be underestimated.

READING REFERENCES

Ames, A., "Aniseikonia—A Factor in the Function of Vision." *American Journal of Ophthalmology,* 1935, **18,** 1014–1019.

Bender, I. E.; H. A. Imus; J. W. M. Rothney; C. Kemple; and M. R. England, *Motivation and Visual Factors: Individual Studies of College Students.* Hanover: Dartmouth College Publications, 1942.

Duke-Elder, W. S., *Textbook of Ophthalmology: Vol. I. The Development, Form and Function of the Visual Apparatus.* London: Henry Kimpton Co., 1932.

Emsley, H. H., *Visual Optics.* London: Hatton Press, Ltd., 1936.

Lancaster, J. E., "The Orthoptic Treatment of Alternating Squint." *American Journal of Ophthalmology,* 1942, **25,** 886–870.

Luckiesh, M., and F. K. Moss, *The Science of Seeing.* New York: D. Van Nostrand Company, Inc., 1937.

Southall, J. P. C., *Introduction to Physiological Optics.* New York: Oxford University Press, 1937.

Tiffin, J., *Industrial Psychology* (2nd ed.). New York: Prentice-Hall, Inc., 1947.

Zoethout, W. D., *Physiological Optics.* Chicago: The Professional Press, 1939.

CHAPTER XII

FIELDS OF CLINICAL PSYCHOLOGY

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77. MENTAL DEFICIENCY

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Mental deficiency is a term used to describe a group of persons, children or adults, who because of a retardation in mental development require special educational advantages and/or social and economic adjustments in order that they may reach the maximum of adjustability in any environment.

The group of mental deficients is composed of (1) those whose potentialities enable them with limited supervision to respond to the advantages of special educational training which is intended to aid them to succeed in home, school, and community life; and (2) those of feeble-minded grade in whom the arrest of the potentialities for mental development has existed from birth or from a very early age, is permanent, and results in an inability for the persons to utilize their experiences and environment independently for their own benefit or the benefit of others.

The mentally deficient of feeble-minded grade constitute from 1 to 2 per cent of an unselected population. Because of their retarded mental development and consequent psychological differences, they are unable to compete on equal terms with the normal members of society. Unless they are identified, trained and given supervision, they become economic, educational, social, and industrial problems to a greater degree than one would expect from their proportion in the community.

HISTORICAL PERSPECTIVE

The attitude of society toward the feeble-minded has progressed through the stages of abhorrance, rejection, and custody to sympathetic care. At present the emphasis is on suitable training and community supervision. The most highly developed program provides for the diversified needs of the group: (1) custody for those whose presence in the community would be inimical to its welfare; (2) specialized care for those whose needs cannot be met in the community; and (3) training for those who may, after the training period, take their places in the community with a minimum of supervision.

PRIMITIVE ATTITUDE

The mentally deficient members of early society were devoid of human rights and were left to fend for themselves. The Spartans disposed of them through abandonment. But Christianity preached tolerance toward all deviates and similar attitudes of commiseration were a part of the teachings of other religions. The first recorded attempt to care for the feeble-minded was offered by the Bishop of Myra in the fourth century. There is no evidence that at this time any efforts were made to give them special training. That only custodial care was offered may have been due to the fact that only the easily recognized cases of subnormality, such as the idiots and imbeciles, were identifiable.

During the Middle Ages the feeble-minded were confused with the insane and the attitude toward them ranged from solicitation to persecution. It is likely that some care was given them in Belgium during the thirteenth century, but it was in France in the latter part of the fifteenth century and in the early part of the sixteenth century that specialized care was organized by Saint Vincent de Paul.

SCIENTIFIC APPROACH

The scientific care and training of the mentally deficient of feeble-minded grade dates from the controversy which arose after the presentation by Itard of the "Savage of Aveyron" before the Academy of Sciences in Paris in 1800. This twelve-year-old boy, perhaps abandoned by his parents or lost in the woods at an early age, was the object of considerable scientific speculation as to the cause of his subnormal intelligence. Itard contended that he was untaught, and because of this was an idiot. But Pinel held to the point of view that idiocy was congenital. Itard sought to substantiate his point of view and began a program of training. Though the boy was able to learn to some degree, Itard was finally forced to abandon the project of making him a normal boy.

The clinical teaching program developed by Itard had in it many fine suggestions, and Itard's pupil, Edouard Seguin, devoted his life to the education of the feeble-minded. His system of sensory-motor training is described in detail in many of his writings. During the middle of the nineteenth century he came to America and was an important influence in the establishment of the first institutions for the feeble-minded in this country.

The evidence suggests that education of the feeble-minded grew out of the efforts to offer the deaf differentiated training. The greatest growth in the development of the training programs in the institutions for the feeble-minded has been since the beginning of the present century. Accompanying these training programs provision has been made for care, custody, and training by almost all of the forty-eight states. The development of the programs has been uneven, however, and much remains to be done by many of the states.

The early research laboratories, such as the ones found in Vineland, New Jersey, and Faribault, Minnesota, which were under the direction of Goddard and Kuhlmann respectively, contributed greatly to the development of the training programs. The pioneer work of E. R. Johnstone and Joseph Beyers with the "Committee on Provision," the publication of Goddard's *Kallikak Family*, and the introduction of the original Binet-Simon tests at Vineland in 1909 are prominent milestones. The institutions for the feeble-minded have truly become training schools for "those whose minds have not developed normally."

UNDERSTANDING MENTAL DEFICIENCY

A number of specialists in a variety of fields have made important contributions to the understanding of the feeble-minded. The physician has studied their physical make-up in an attempt to determine physiological causes of the condition. A great many researches have been carried out to determine effective medical treatment. The pediatrician, endocrinologist, pathologist, anthropologist, roentgenologist, psychiatrist, sociologist, educator, and psychologist—each has made a significant contribution.

It early became apparent that feeble-mindedness could not be "cured" in the sense that we speak of a medical condition being cured. Medical science is continuing to study the condition, and some day a cure may be found, but at the present time the outlook for an early remedy is not hopeful.

The educator has discovered that the feeble-minded child can be trained within the limits of his ability. Many significant and highly worth-while training programs have been developed. The sociologist has found that certain feeble-minded individuals can be helped to adjust to community life. The psychologist has established that the feeble-minded can be studied objectively, and his findings have been of considerable value to all other specialists concerned with the problem of mental deficiency.

PSYCHOLOGICAL PROBLEM

Fundamentally, the problem of feeble-mindedness is one of mentation. The feeble-minded are not integrated. They lack the ability to make a meaningful whole from discrete parts. They have a tendency to react on the affective rather than the cognitive level. They show a perseverative tendency in their actions, which indicates a lack of resilience and flexibility. In discerning elemental relationships they show a fundamental lack of acuity.

Although the feeble-minded can be studied as a single group, their psychological reactions are by no means homogeneous. Actually, they differ among themselves almost as much as they do from the remainder of the population. The failure to recognize the individual differences within the group frequently results in a failure to develop and train the feeble-minded person to his fullest potentialities.

THE INSTITUTIONAL PSYCHOLOGIST

In an institution for the mentally deficient the psychologist works as a general practitioner. For this reason he must be trained in all fields of psychological practice. Each one of the many fields of psychological training contributes data and methodology which are certain to be of value in the understanding of the mentally deficient person. The psychologist should be well grounded in the fields of general psychology, experimental psychology, psychology of learning, abnormal psychology, industrial psychology, child and adolescent psychology, psychology of senescence, and psychology of crime and delinquency. He will also find that the fields of education and sociology should be familiar ones to him. He must be trained in scientific inquiry, for his work is constantly one of investigation. Because of the close relationship of the psychologist in an institution to the administration of the institution, he should have a knowledge of the fields of administration, personnel management, and public relations.

In order to do successful work the psychologist in an institution must coordinate his work with the

program of the entire institution. In an institution, more than in any other situation, the various specialists must work as a team. The psychologist maintains his own integrity and professional rights, but he must function effectively in the general institutional program.

PSYCHOLOGICAL EXAMINATION

The primary function of the psychologist in an institution for the mentally deficient is to study and evaluate the deficient child or adult as a psychological entity. He uses as his tools the various psychometric techniques that have been demonstrated to be of value. But the giving of a mental test or the calculation of a mental age, the intelligence quotient, or any other derivative of the psychometric does not constitute a psychological examination. It is well known that any reasonably intelligent person can be trained to administer tests and obtain accurate results. The interpretation of the test data, however, is the responsibility of the specialist and requires considerable professional experience.

INTELLIGENCE EXAMINATION

Most institutional psychologists prefer to use established tests for the measurement of intelligence. The choice of which test or battery of tests to use is predicated upon the adequacy of the standardization, the norms which have been established, and the clinical value of the technique. Although the tendency is to use the same battery of tests in similar situations because standardization of methodology is desirable, it is not mandatory. The psychologist in an institution has the responsibility of making the decision as to which technique shall be used in a particular situation. This is one of the reasons why it is necessary for him to be familiar with developments in his field. He must study carefully the new techniques as they appear, in order to determine whether they have clinical value.

PRELIMINARY CLASSIFICATION

The psychologist must exercise great care in determining whether a particular individual is to be classified as mentally deficient. There is ample evidence to show that certain research studies have led to false conclusions because the subjects were erroneously classified as feeble-minded. Simply because a person is in residence in an institution for the feeble-minded is not a guarantee of mental deficiency. The following cases, given as examples, could be multiplied many times:

1. John, a fourteen-year-old boy in an institution for the feeble-minded, was classified on admission as a mentally deficient individual of imbecile level because he had "a Binet-Simon mental age of less than four years." Careful study, however, proved him to be a case of congenital auditory aphasia and that he was of normal intelligence.
2. Joan had been classified as "mental" and it had been recommended that she be committed to an institution for the feeble-minded or a hospital for the mentally ill. She proved to be a case of unrecognized deafness, but her intelligence was normal.
3. Jack was committed as an idiot but was found to be normal although his case was that of cerebral birth palsy.

The professional psychologist is well aware of the fact that the intelligence quotient alone cannot be used as diagnostic of feeble-mindedness. Indeed, in certain institutions the use of the intelligence quotient is discouraged, or has been abandoned. To assume that all persons having a certain intelligence quotient are mentally deficient and that all above it are normal is not only unsound but absurd. Mental deficiency is a symptom complex entirely too variable to be subjected to any sharp dividing line or to be characterized from the results of a single intelligence test.

DIFFERENTIAL EXAMINATION

As has been pointed out, the measurement of intelligence is an important part of the work of the professional psychologist in an institution, but it should not consist of only a psychological examination. The examiner must be alert to detect the special abilities and disabilities which frequently are obscured by the general defects in the intellectual or cognitive spheres.

Many techniques have been found in the study of difficult subjects. Problems of judgment, thinking, reactions, learning, and categorization are now being subjected to inquiry in psychological laboratories and research centers. It is not only a serious mistake, but impossible, to employ the same battery of tests, or even the same fields of inquiry, in every instance. Each examination is made for a specific purpose, and the problem involved should guide the psychologist in the selection of his techniques.

DEFICIENT CHILDREN

Very young children are studied by means of the scales of mental development that have been standardized on normal children of the same age. When

it is difficult to reach a decision as to mental capacity on the basis of an initial examination, a re-examination after six months or within a year will serve to check the initial results and prevent improper classification, with its accompanying pain among members of the family. Many psychologists feel that the final classification as to normality or feeble-mindedness should not be made until the child is at least three years old, except in instances of extreme retardation.

Children of early school age cannot always be safely classified by tests having a high correlation with school attainment. These tests are generally of the verbal type that places a premium upon verbal facility. If the examiner is not careful verbal deficiency unaccompanied by mental deficiency may lead to the improper classification of the child. A performance test or a nonverbal test will aid the psychologist in reaching a decision on difficult cases. These tests of the form board or manipulative type are largely independent of language. It is in the early school-age group that special disabilities in the verbal or school subject field may suggest severe mental retardation.

ADOLESCENTS

Young adolescents present difficult problems of examination in any psychological clinic. There is frequently too great a tendency to prejudge a youngster because he does not do well in his academic work. If such a youngster is labeled "mentally deficient," it may give his teachers and parents an entirely wrong conception of his true abilities. With the adolescent, and with the adult as well, a low level of verbal or nonverbal performance which is unsupported by other clinical data is not to be considered indicative of mental deficiency.

CLASSIFICATION

The mentally deficient child or adult is notably defective in judgment and reasoning, proficient in rote memory, and defective in determining relationships. He is also less inhibited than the normal child and a great deal more responsive to suggestion than the normal child or adult. His interests are those of a child much younger than one of his own age, and his emotional life is also at this level. The mentally deficient adult is similar in attitudes and interests to the normal child or young adolescent. The reactions of the adult, however, are colored by the fact that he has lived longer and consequently has had a greater number of experiences.

The primary mental characteristics of the mentally deficient are easily demonstrated in the feeble-minded adult. They compose the symptom complex, which is mental deficiency of the feeble-minded grade. In addition to retardation in mental development, which is found in almost 100 per cent of the cases, the characteristics found in nearly all cases after careful study are, as previously mentioned: (1) ineffective integration; (2) reaction on the affective rather than the cognitive level; (3) perseverative tendency; and (4) a disacuity in discovering elemental relationships. These factors make it necessary for the mentally deficient individual of feeble-minded grade to have external supervision. This supervision is provided for either by the environment or by a person.

PSYCHOLOGICAL REPORT

In particularly difficult cases the examination may have been a lengthy one extending over a long period. After determining that the individual is classifiable as mentally deficient, however, it is the responsibility of the psychologist to correlate and synthesize the psychological data that he has obtained in a report. The psychometric data give not only end-results, but provide standard situations which are extremely useful for the interpretation of the psychological processes of the individual. Although psychometric data are objective, they are rarely included in the psychological report. Most psychologists feel that the test data are similar to laboratory findings, and while they are meaningful to the technician, they are much less meaningful to the person untrained in the field. Indeed, it is sometimes considered dangerous to report the data since many persons feel they are capable of interpreting data when they are not, and a wrong interpretation may follow.

AIM OF THE REPORT

The psychological report should aid in the development of a plan to meet the needs of the deficient person. The primary problem in the modern institution is the placement of the individual in society, or, if that is not possible, within the institution. His ultimate attainment may be predicated on the basis of results of the examination shown in the report. The goal for the mentally deficient person must always be set in accordance with the best interests of the individual and of society.

Let us take as an example the examination of a new admission to an institution which has been established for the training of high-grade mentally deficient girls. The objective of this institution is to

train the girls so that they may become entirely or partially self-supporting in the community.

In determining the status of each girl the following questions should be raised:

1. Is this girl mentally deficient? (While it rarely happens that a nonmentally deficient individual is committed to an institution for the feeble-minded, it does happen occasionally and this initial check should be made.) If she is not mentally deficient, steps should be taken to have her removed from the institution.
2. How much is she retarded intellectually and what is her level of ability? (These factors are very important from the point of view of training.)
3. Is she trainable to such a degree that she will adjust to the community?
4. What are her special abilities or deficiencies? (This information is of great importance to the training department. A special ability may be a talent to be developed, while a deficiency, such as a reading defect, may preclude certain types of training.)
5. What are her assets and liabilities in the fields other than the cognitive? (Knowing these makes it possible for the institution to capitalize on her assets and correct or compensate for the liabilities.)
6. What are the important factors relating to her personality integration? (It frequently happens that personality factors may be of more real significance in the mentally deficient than assets or deficiencies in intelligence and special abilities.)
7. What specific recommendations can be made to the various departments of the institution in which she will have experience during the expected training period?

It is the duty of the psychologist in each institution to make his examination and his report in accordance with the goal of the institution. If there are multiple goals, then the examination and report can be of a highly differential type and clinical to a high degree.

FOLLOW-UP WORK

The psychologist in any institution, school, or clinic should have a well-planned program for checking and rechecking the results of his examinations and recommendations. This is the only means by which he can improve his work. It is also important to the person resident in the institution, for this gives the opportunity to redirect the program so that the desired goal for the individual may be attained.

The psychologist should work in close liaison with every department of the institution. He should always be ready to solve individual problems as they are referred by the various divisions of the institution. For example, by reason of his training and background the psychologist is particularly competent in the problems of learning and should, therefore, be expected to work closely with the education department of the school. In many institutions it is the duty of the psychologist to give educational attainment tests and interpret the results to the principal of the school. Problems of special disabilities in school subjects can be analyzed and those deficiencies more readily corrected or compensated for.

THERAPY

The question may be asked as to whether therapy can be carried out with the feeble-minded. Therapy in an institution for the feeble-minded takes the form of clinical counseling. The psychologist can help to correct such bad behavior as biting the nails, excessive sex play, peculiar eating habits, and many others. Much of the counseling and/or retaining is done by the cottage personnel, who can be specially helpful to the psychologist if they understand the basic reasons for the child's actions and the program.

RESEARCH

The psychologist has a real responsibility to aid in the development of his profession. Working in an institution for the mentally deficient of feeble-minded grade he has a responsibility to make contributions to the field of mental deficiency. It is possible to set up programs for examination and study so that they will lend themselves to the research needs of those outside as well as those inside the institution. It is not likely that he will carry on extensive research, but even small segmental studies which he may make can be important contributions.

It is a well-known fact that a great many of the earliest psychological studies were made in institutions for the mentally deficient. There are a great many others yet to be made. Not only the mentally deficient but their normal brothers and sisters as well will profit as a result of these researches.

SOCIAL VALUE

Those who have worked in the field of mental deficiency find it difficult to believe that any other field offers a greater variety of tasks and greater personal satisfaction. Here are persons who can be made happy if they are thoroughly understood, and in

helping them to adjust, benefits accrue to many others. In studying and helping "those whose minds have not developed normally," the psychologist in an institution for the mentally deficient will find far more challenges than he will be able to meet.

READING REFERENCES

American Journal of Mental Deficiency, Humphreys, E. J. (ed.). Published quarterly.

Berry, R. J. A., and R. G. Gordon, *The Mental Defective.* New York: McGraw-Hill Book Company, Inc., 1931.

Davies, S. P., *Social Control of the Mentally Deficient.* New York: Thomas Y. Crowell Company, 1930.

Goddard, H. H., *Feeble-Mindedness: Its Causes and Consequences.* New York: The Macmillan Company, 1914.

Penrose, L. S., *Mental Defect.* New York: Rinehart & Company, Inc., 1934.

Porteus, S. D., *Studies in Mental Deviations.* Vineland: The Training School, 1922.

Tredgold, A. F., *Textbook of Mental Deficiency* (6th ed.). New York: William Wood & Company, 1937.

Wallin, J. E. W., *The Education of Handicapped Children.* New York: Houghton Mifflin Company, 1924.

78. THE MENTALLY ILL

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The extent of mental illness in the United States is difficult to estimate because it is hard to know where to draw the line between the merely eccentric and the bizarre—the point at which deviation from accepted modes of reaction becomes so pronounced as to warrant the term "psychopathological." Particularly is this true in those borderline states designated as psychoneurotic and psychopathic. Today too, chronic alcoholism is being recognized as a disease, primarily mental rather than physical, if we must perpetuate the dualistic formulation. The addition of the nation's alcoholics to the rolls of the mentally ill vastly increases the count. Although they are in and out of institutions, these three groups constitute a community problem. The neurotics from time to time are committed to state hospitals but for the most part haunt the offices of private physicians, make the rounds of the clinics, or spend brief periods in private sanatoria. Psychopaths and alcoholics are as frequently sent to penal institutions—jails, workhouses, reformatories, and prisons —as to mental hospitals but, unless serious crime is involved, are held only for short terms.

Besides these groups, for which society has yet to develop adequate types of care intermediate to the closed hospital and the prison, is another group admittedly suffering from mental illness and steadily increasing in number, a great many of whom are cared for at home although state hospitals too are filling up with them at an alarming rate. These are the victims of various forms of senile psychosis. The higher incidence of such maladies is, of course, a function of the lengthened life span, and thus they constitute a problem which is likely to remain with us. Again the line is frequently hard to draw between the expected failures of senescence and pathological changes warranting a diagnosis of psychosis with cerebral arteriosclerosis or of senile psychosis. Because many with the former malady have only occasional disturbed episodes and, with the latter, appear merely childish and forgetful, they often are kept in the home, particularly in rural districts. Hence their numbers can only be estimated roughly.

Precise data are, of course, available on the number of mental patients taken care of in state institutions. The 1944 report of the Bureau of Census shows the average daily resident population in state mental hospitals to be 433,066, an increase of nearly 3,000 over the 1943 figures. When to this great number are added the patients taken care of at home and

the various borderline groups already described, the magnitude of the problem confronting the clinical psychologist who works with the mentally ill is evident.

The places of contact between the psychologist and the mentally ill may be grouped as follows: (1) institutions—hospitals, sanatoria, jails, workhouses, reformatories, and prisons; (2) clinics and life adjustment centres; (3) private practice.

Since the treatment of the psychopath, the work done in clinics of various types, and the range of problems seen in private practice are taken up elsewhere in this book, it seems best to confine this discussion to the work of the clinical psychologist in mental hospitals. There are to be found, not only those suffering from the major psychoses, both functional and organic, but also the neurotics who cannot adjust outside, the psychopaths and the alcoholics confined briefly for recovery from acute episodes, and, in ever increasing numbers, the aged for whom care at home is no longer possible.

THE HOSPITAL PSYCHOLOGIST

Four basic areas of service are open to the clinical psychologist in a mental hospital although the emphasis varies considerably from institution to institution.

THE PSYCHOLOGICAL EXAMINATION

The psychological examination is usually regarded as the chief function of the psychologist and an indispensable aid to the psychiatric diagnosis. As Menninger (quoted in Rapaport et al. 1944) has significantly said:

> With the advent of the newer methods in psychological testing, psychiatry has come of age in the scientific world. Standardized laboratory procedure has been introduced to supplement, corroborate and measure those tendencies which the empirical experience of clinicians had shown to be significant. Psychiatry is just reaching that point in its development which internal medicine reached when clinical laboratory methods were introduced to supplement physical examination and bedside observation. Diabetes was recognized and treated long before the Fehlings and Folin tests were in common usage, but it would be a rare and rash man indeed who would today undertake to diagnose and treat diabetes without the laboratory evidence derived from these tests. The nephroses can easily be recognized in their more advanced stages without the aid of the laboratory but it would approximate malpractice for a physician to neglect laboratory guidance and confirmation in establishing an early diagnosis of this disease or in measuring its progress.
>
> It is in precisely the same way that the psychological laboratory has become indispensable to the clinical psychiatrist.

Nevertheless, except in a few private institutions such as the Menninger Clinic or highly specialized research centers, like the New York Psychiatric Institute, the psychological staff in most hospitals is too small to see every new admission routinely and only certain types of cases are referred for study and evaluation. Perhaps the most frequent reason for referral is the necessity of determining intellectual status. It is easy to mistake the psychotic patient for a mental defective, and even experienced psychiatrists frequently so stigmatize depressed and retarded cases, stuporous catatonics, or others from whom no adequate history can be obtained. It then becomes the task of the clinical psychologist to distinguish between amentia and dementia. Having made this distinction, a corollary problem, in dealing with the psychotic, is to determine the nature of the impairment, whether functional or organic or both, and to measure its extent. A later task is that of evaluating the degree of improvement under treatment and the residual scarring, if any, in order that suitable plans may be made, whether for increased privileges, parole, and ultimate discharge, or for permanent custodial care. Paretics are a good example of patients showing both functional impairment and deterioration, that is, irreversible organic loss. After treatment, the functional signs tend to clear up and test scores to improve, but there is a residual intellectual deficit that makes it impossible for such patients to adjust socially or vocationally at their prepsychotic level. A host of other problems of this type confronts the clinical psychologist and more refined instruments are continually being developed for the recognition of the aphasias, the measurement of brain damage, etc.

Besides such quantitative evaluations of the intellectual function, the psychologist is also frequently called upon for help in differential diagnosis as between severe neuroses and incipient psychoses or between functional and organic psychoses. In recent years, characteristic patterns of performance in various syndromes have been shown to exist even on standard intelligence tests. The most sensitive diagnostic tool, however, in the hands of an experienced worker, is the Rorschach. Although it does not purport to yield a mental age or I.Q. as such, the approximate level can readily be fixed and it gives

very valuable data on the qualitative aspects of intelligence. But the test is still more important for the light that it throws on personality structure, considered by Rorschach to be determinative of the type of neurosis or *functional* psychosis which an individual develops. Certainly, entirely different psychograms are to be found among the various disorders and to one accustomed to the use of the test with mental patients the "smell" of a schizophrenic record or the signs pathognomonic of organicity are unmistakable. Other projective tests particularly helpful in picking up organic brain disease are the Mosaic and certain form-perception tests like the Bender Gestalt. But for an all-round picture of the personality, together with diagnostically significant patterns of reaction, the Rorschach is unexcelled.

When special treatment is planned, including intensive psychotherapy, the clinical psychologist in a mental hospital may be called upon to evaluate the patient's condition at the beginning of the course and again at its close. If any of the shock therapies are administered or prefrontal lobotomy is resorted to, changes both in intellectual level and personality function are studied, the standard intelligence tests and the Rorschach usually being employed. The progress of patients undergoing either group or individual psychotherapy is most often measured by successive Rorschachs. Frequently, of course, patients who, from a diagnostic standpoint, are of special interest are examined on a whole battery of tests, both psychometric and projective. Of the latter, one of the most useful in disclosing the underlying psychodynamics of the personality is the Thematic Apperception Test.

Finally, some mental hospitals, especially those dealing with military personnel, have launched vocational advisement programs involving extensive testing of interests and aptitudes. The patients referred for such help are usually well recovered, and the testing procedure is much more standardized and akin to that done outside the hospital. Indeed, if the patient appears still to be disturbed or retarded, guidance is deferred since no training objectives could legitimately be set up until his probable status on discharge can be foreseen.

In addition to this varied testing program for patients, the hospital psychologist is usually also responsible for the examination of institutional personnel, which generally includes the testing of each entering class of student nurses, sometimes group tests of other personnel, sometimes only occasional individual tests of attendants or applicants for positions when some special problem presents itself. Among the tests used are the standard psychometric instruments; achievement tests, if special learning disabilities are suspected; and Rorschachs to evaluate personality difficulties or to pick up incipient psychopathology. Didactic Rorschachs are also often requested by internes and residents.

In the main, such testing as has been described is done individually for the best clinical results. The pressure of work in a large mental hospital may incline the psychologist to the use of group tests but, particularly with mental patients where the establishment of rapport and close observation of behavior in the test situation are so important, they are not satisfactory except as a general screening device. The exigencies of the war situation tended to popularize their use and led to the development both of the group Rorschach and the group Thematic Apperception Test, but many hospitals, which had then perforce to employ group procedures, have now returned to the more precise technique of individually administered tests. Similarly, in the field of personality evaluation, a test such as the Rorschach is to be preferred, especially in a mental hospital, to questionnaires and personality inventories however good they may be. They also, even when individually administered, are primarily screening devices, and do not give sufficient information about the patient's mode of reaction in problem situations.

In the administration and evaluation of tests special problems face the clinical psychologist in working with mental patients. Foremost is the establishment of rapport. This is essential to all successful interpersonal relations, but to achieve it with the psychotic is usually difficult; sometimes, as with mute or excited catatonics, highly disturbed manics, very depressed patients, or suspicious paranoids, it is impossible. One of the rewarding experiences in working with the mentally ill, however, is to be able to penetrate the barrier and persuade the patient to lay aside his psychotic preoccupations and enter into the test situation even temporarily.

Especially as regards intelligence tests, but to some extent also in the projective, it is perhaps not going too far to say that few of the rules applicable to the testing of normals and congenital defectives hold. What is sought is the most reliable evaluation possible of the various functions tested. Since the ability to fix the attention and to mobilize sufficient energy to solve problems is notably reduced in

many psychotics, considerable latitude must be allowed. This situation justifies repetition of questions and occasional explanations not permissible in the usual examination. Continually the psychologist must be alert to differentiate between true inability to respond and failure, due to a shift of attention, to discouragement and apathy, to preoccupation with delusional material, or to the sudden intrusion of the "voices."

At best, test results with psychotic patients are usually uneven so that what is significant is, not only the obtained mental age or I.Q., which shows the functional level at the time of the examination, but the evidence offered by occasional successes of a potentially higher performance level. Extremely significant, too, for diagnosis is the type of selective impairment of function which the test reveals. It is well known, for instance, that, except in certain organic syndromes like aphasia, the vocabulary is relatively little damaged in mental illness; therefore, it frequently affords the best clue to the prepsychotic level. Again, tests of rote memory are often passed with ease by defectives, whereas organics have the greatest difficulty with memory tests of all kinds. Thus even a psychometric yields fairly characteristic patterns, differentiating functional from organic psychoses and both types from simple mental deficiency.

In the final summary of the psychometric findings, the present functional level of the patient should be brought into comparison with the inferred prepsychotic level. As already suggested, the internal evidence of the test itself, such as the vocabulary range, the quality of the definitions, or occasional striking successes above the obtained mental age, will often give a clear indication of the prepsychotic level. Reference to the case history, particularly as regards school achievement and vocational and social adjustment, will usually afford supporting evidence. When the internal evidence of the test is ambiguous or there appears to be a general levelling of function, the case history data will have to be the chief reliance. Having approximated the prepsychotic level, comparison with present performance shows at a glance the extent of the intellectual deficit. Whether this is merely impairment (functional) or deterioration (permanent and irreversible) is usually disclosed, as already suggested, by the test pattern.

To recapitulate briefly, the psychologist working with mental patients must, not only be able to establish and maintain rapport with subjects alienated from reality, hallucinated and delusional, but must be prepared to use the tests with flexibility and skill as delicate, clinical instruments, and not as rigid measuring rods. And then, having secured his data, he must evaluate them quite differently from the test results of normals, never taking the obtained I.Q. or mental age at its face value, but probing always to discover what powers are still intact, which ones are temporarily or permanently damaged. Such finesse in administration and evaluation is acquired only through wide and varied experience in dealing with mental patients.

Following the careful analysis and interpretation of test results, a typewritten summary is usually prepared for the patient's case record. In addition, in most hospitals, the psychologist attends all staff and diagnostic conferences, and there has an opportunity to present the psychological findings and discuss their implications.

TEACHING FUNCTIONS

In most hospitals certain teaching functions devolve upon the psychologist and these usually have a two-fold significance: first, to acquaint the hospital staff, social workers, and nurses with the contribution which psychological studies can make toward an understanding of the patient and hence to his treatment and ultimate recovery; and second, to provide training and experience to students of clinical psychology.

As regards the former, the psychologist is usually called upon to give a basic course in psychology in the training school for nurses if there is one. Many mental hospitals are affiliated with the medical school of a near-by university and assume partial or entire responsibility for its curriculum in psychiatry. In such instances, the hospital psychologist may be asked to give a course in Medical Psychology, lecture on psychological techniques, and give clinics for third- and fourth-year students. Within the hospital itself, lecture courses are usually offered each year for internes and residents in which the presentation of psychological theory and practice has a recognized place.

The correlative function, the training of clinical psychologists, has taken on new importance since World War II. The needs of the armed services, and now of the Veterans Administration and the US Public Health Service, for well trained workers have shown up, not only the great dearth of clinicians but, equally serious, the lack of adequate training facilities. Even before the war, and increasingly

since, however, psychologists in mental hospitals have been concerned over this problem and have themselves initiated programs of training. Thus, in many instances, an affiliation with a near-by college or university has been worked out and field courses set up in the institution for the training of graduate students. In a few hospitals, full fledged internships in psychology have been established for a number of years, and these are now multiplying rapidly. In this connection, it is noteworthy that the American Psychological Association, which has recently organized a National Board of Examiners for various applied specialties including clinical psychology, will require a full year of internship as a prerequisite to certification. Necessarily, the burden of responsibility for interne training in mental hospitals will rest on the shoulders of the clinical psychologist in the institution so that teaching functions are likely to increase rather than decrease in the years ahead.

THERAPY

The responsibility for therapy which the clinical psychologist assumes varies greatly in different institutions. At the simplest level, it takes the form of remedial work (usually in reading and spelling) with student nurses or other personnel, occasionally with patients. Such remedial work, involving as it does prolonged interpersonal relations, tends to run over into counseling on a wide range of emotional problems, as such difficulties are generally at the root of the disability.

In hospitals which have set up a vocational program, counseling is an integral part, and again is likely to extend beyond the choice of job or profession and to embrace personal difficulties in adjustment as well. In fact it would be impossible for the psychologist to make wise recommendations with regard to training and ultimate goal without talking over the problems which had made the patient's previous adjustment painful and unsatisfactory.

Intensive psychotherapy, whether individual or group, is frequently regarded as the exclusive function of the psychiatrist. However, in practice, experienced, clinical psychologists frequently carry on both types of treatment. Sometimes this is done independently, more often under the direction of the psychiatrist in charge of therapy.

Rather recently introduced into a few hospitals is a special technique of therapy—the psychodrama—in which the patients, aided by "auxiliary egos," spontaneously act out their problems. This again may be under the direction either of a psychiatrist or the hospital psychologist, sometimes under a lay person experienced in dramatics and stagecraft. However, the type of problems explored is usually determined by the degree of trained direction given. Thus, if the work is in the hands of a lay person, the plots enacted are at a relatively superficial level and have to do with securing a job, explaining the hospitalization to the folks back home, and similar, immediate problems. Under psychological or psychiatric direction, the psychodrama may become an important instrument for the resolution of fundamental emotional difficulties.

Besides the psychodrama, the other arts are also invoked as a means of therapy, and classes in music, dancing, and painting are to be found in many hospitals. Such work may be under the direction of the psychologist, but more frequently is considered to belong in the occupational therapy department.

RESEARCH

In the majority of state institutions for the mentally ill, there is usually little opportunity for research because of the pressure of routine work reflected in their psychology departments by increased demands for tests. A few states, however, have organized special research institutes and certain state hospitals have maintained an excellent record for research over the years. With a few notable exceptions, the small private institutions are not interested in carrying on scientific studies and most of them, indeed, do not even employ a psychologist. In hospitals in which the psychology department carries on an active teaching program, considerable research is usually underway since students and internes are at work on masters' or doctoral theses. Otherwise, outside of the special research centers, the psychologist will too often find that his own studies and investigations, however important and promising, have to be done in his free time or at best be fit into occasional broken periods during the day, which renders the completion of work difficult and is discouraging to scientific inquiry.

In view of the wealth of material in the mental hospital and the host of unsolved problems it presents, all basically psychological, this relative neglect of research is unfortunate. Recently, some of the great Foundations and a few organizations, for example, the Masonic (Scottish Rite) have become interested and made extensive grants for special projects. By and large, however, the condition can

be remedied only by increased public concern for mental health which will enforce greater legislative generosity in the amounts appropriated for continuous scientific study of the problem. The recent passage of the National Mental Health Act is an important step in this direction.

PROFESSIONAL RELATIONS

In dealing with the mentally ill, more directly than in any other area of specialization, the psychologist is brought into intimate relations with the physician and it becomes essential to define their respective fields. That both clinical psychology and medicine recognize this is indicated by the fact that a joint committee of the American Psychological Association and the American Psychiatric Association has been set up to clarify the situation. At present there is considerable confusion and the seeds of possible discord and rivalry, which it would be most unfortunate to permit to develop.

In order to understand the problem, it may help to trace briefly the development of the two lines of approach to human ills—the psychological and the medical. In our culture, the differentiation is first clearly expressed in the Greek terms for the age-old mind-matter dichotomy, viz. "psyche" and "fusis." From the first of these are derived both the words "psychology" and "psychiatry"; less obviously, from the second, "fusis," come "physics," defined as the science of matter, and "physician," our name for those who treat the body.

In the long, slow evolution of medical science, only "physical" ills were considered to be its subject matter. To the priest remained, as always, sole concern for the health of the spirit and responsibility for the exorcism of evil spirits or demons in cases of "possession." Meanwhile, however, the philosophers were speculating on the nature of spirit or mind, and very gradually the discipline of psychology emerged, defined first as the science of consciousness, today as the science of the behaving organism. But within the last century and a half, the physician, throwing off the superstitious view of mental illness and accepting a naturalistic explanation, has sought methods of treating it; thus has arisen a new speciality—psychiatry. To the extent that psychology has succeeded in formulating the laws of mental function, it may be considered to bear somewhat the same relation to psychiatry that physiology bears to medicine. Unfortunately, however, while the physician is required to take intensive training in the anatomy and physiology of the body, he is not comparably trained in psychology, the "anatomy" and "physiology" of mind.

Today the ancient mind-body dichotomy has broken down and both psychology and medicine must accept a monistic frame of reference. The ultimate reduction is to energy, but the nature of that energy is variously defined. While the old dualism is still preserved in such terms as "psychobiology" and "psychosomatic," many workers now prefer to conceptualize "levels" or "panels" of function. According to the modern, organismic view, however, it is the *purpose* or *goal* of the organism that determines its behavior at every level. Thus fundamental to any treatment must be a profound understanding of human motivation—and this is the central problem in psychology.

The only area of potential conflict between the clinical psychologist and the psychiatrist involves the qualifications of the former to engage in therapy. To be sure, psychiatry has recently been defined as "the study of the processes that involve or go on between people" or, again, as "the field of interpersonal relations, under any and all circumstances in which these relations exist" (Sullivan, 1945), but the average physician practicing this specialty takes a much narrower view of his responsibilities and confines himself to the treatment of mental illness. Usually it is the psychologist who is charged with invading the domain of medicine if he engages in therapy, but certainly any such definition of psychiatry amounts, not to an invasion of the traditional field of psychology but an attempt to take it over completely!

The whole problem of lay therapy, while it deserves the most careful consideration, can only be touched on briefly here. Perhaps a primary problem is to distinguish the point at which remedial teaching, vocational advisement, and such counsel as the priest or minister offers to a troubled soul, the social worker to a client, the older person to a younger—all usually recognized as legitimate lay functions—cross over and become therapy, and hence taboo. Certainly the recipients of such remedial help, advisement, and counsel are all to some degree imperfectly adjusted. No hard or fast distinction can be drawn. It is a continuum from the minor maladjustments from which we all suffer to the major ones expressed in the psychoneuroses and functional psychoses. Sometimes there is an attempt to draw a line between "simple" maladjustments and neurosis, sometimes between neurosis and psychosis, even between functional and organic psy-

choses, but such distinctions are artificial and useless. Not only do these conditions merge, but the prodromal stage of many psychoses are indistinguishable from neurosis and even in the organic psychoses there are important psychological components.

In current practice, psychologists work in schools and clinics of all kinds doing remedial work and handling every type of adjustment and behavior problem. In many clinics, the practice recommended by the National Committee for Mental Hygiene is followed and there is a "team" consisting of a psychiatrist, a psychologist, and a social worker. In such instances, the psychiatrist is usually, but by no means always, in charge. Frequently, the psychiatrist serves only in a consulting capacity and the chief responsibility falls upon the psychologist.

In mental hospitals, however, always staffed by psychiatrists, the situation is somewhat different and the position of the psychologist as regards therapy is anomalous. Here practice and theory frequently diverge and while nominally the psychiatrist alone is intrusted with therapy, actually the psychologist has a good deal of it turned over to him or is free to undertake as much of it as he can find time to handle. In hospitals where the cleavage is greatest, the psychologist is occasionally relegated to the position of mere technician and excluded from participation, not only in therapy, but in diagnostic determinations as well. Where this is done, the psychologist's ability to present his material in such fashion as to make it really contributory suffers.

In general, the bogy which is raised by the medical profession in any discussion of lay therapy is that grave physical disease may go unrecognized. The answer is, of course, that any therapist must protect both the patient and himself by seeing to it that a careful physical examination precedes his acceptance of the case. As a matter of fact, the lay therapist, aware of his lack of training in physical medicine, is likely to be more cautious in this regard than the psychiatrist who may have been entirely divorced from the field of general medicine for years. The practice of any specialty has the tendency to blind one to quite obvious pathology in other areas. Not infrequently the dentist treats as local a condition which is really systemic, the overspecialized physician misses gross symptomatology outside his own range of interest, and the psychiatrist may work for months with a patient without either himself making or requiring a thorough physical examination. The psychologist's lack then of a medical degree is perhaps not the real stumbling-block.

What seems to the writer to be crucial is the type of education that should be demanded both for clinical psychology and for psychiatry. The training of the psychologist up to the present time has been admittedly inadequate and what skills he has acquired in therapy have had to be self-taught. Certainly, if he is to work with patients and in daily association with physicians, his training should include various basic orientation courses in medicine. Conversely, the psychiatrist should have understanding of the principles of modern dynamic psychology and the techniques it has to offer. A threat to both psychiatrist and psychologist is the recent infiltration of the field of therapy by lay analysts and enthusiastic graduates of "short-horn" Rorschach courses who have had training neither in medicine nor in systematic psychology. Perhaps the ultimate answer will lie in the recognition of and training for a new profession, that of psychotherapist. Meanwhile, however, the clinical psychologist and the psychiatrist are inextricably bound together—their field, the study and care of the mentally ill and maladjusted. To be fruitful, the association must be based on mutual cooperation and respect.

READING REFERENCES

Babcock, H., "An Experiment in the Measurement of Mental Deterioration." *Archives of Psychology,* 1930, No. 117.

Goldstein, K., and M. Scheerer, "Abstract and Concrete Behavior; An Experimental Study with Special Tests." *Psychological Monographs,* 1941, **53,** No. 2.

Murray, H. A., et al., *Explorations in Personality.* New York: Oxford University Press, 1938.

Rapaport, D., et al., *Manual of Diagnostic Psychological Testing: I. Diagnostic Testing of Intelligence and Concept Formation.* New York: Josiah Macy, Jr. Foundation, 1944.

Rorschach, H., *Psychodiagnostics; A Diagnostic Test Based on Perception.* New York: Grune & Stratton, Inc., 1942.

Sullivan, H. S., "Conceptions of Modern Psychiatry." *Psychiatry,* 1940, **3,** 1–117.

Wechsler, D., *The Measurement of Adult Intelligence.* Baltimore: The Williams & Wilkins Company, 1944.

Wertham, F., and L. Golden, "A Differential-Diagnosis Method of Interpreting Mosaics and Colored Block Designs." *American Journal of Psychiatry,* 1941, **98,** 124–131.

79. PHYSICAL DISEASE

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It is likely that beginning with man's earliest encounters with physical disease, those who accepted the responsibility for ministering to the sick were frequently impressed by a relationship existing between actual bodily ailments and the mental discomforts that were often reported as preceding, occurring with, or following the organic occurrences. Socrates was, for example, impressed by the successes attained by physicians in Thrace who paid heed to the mind-body relationship, while Greek physicians who generally ignored this relationship frequently failed to recognize this element as a causative factor in many of their patients.

During the Middle Ages the emphasis shifted from recognition of the mind-body relationship to a tendency to ignore the body and emphasize the mind, but this "mind" was not as we conceive it today, but rather the "religious mind," now commonly called the "soul." In those days when one became ill it was generally assumed that the soul was possessed by evil spirits. The witch doctor, the faith healer, and other mystics were really the most favored practitioners of medicine.

Even during the Renaissance a clear picture of mind-body interplay was not accepted generally. Most of the time the physician was too intent upon those elements which could be detected through his diagnostic senses and which were more or less tangible. Priest and the philosopher devoted himself to studying the mental discomfort but seldom possessed the understanding and perspective to evaluate correctly a connection between what was happening physiologically to the individual and his mental processes.

Little by little, from the beginnings of medical practice down to the present day, the kinship that exists between organic disease and the mental concomitants has continued to grow in importance and recognition. More recently the reverse process, that is, the production of organic concomitants from mental malfunction likewise has come to the forefront. As a result, it is hardly surprising that a medical group with prime interest focussed upon psychosomatic (mind-body) medicine should have evolved during the twentieth century. The impetus of war with its numerous mental and physical stresses undoubtedly has contributed to the present-day recognition being accorded this matter. This is voiced effectively by Dr. Edward A. Strecker who, in his article, "Mental Hygiene," in Nelson's *Loose-Leaf Living Medicine,* says, ". . . it is not an overstatement to say that fully 50 per cent of the problems of the acute stages of an illness and 75 per cent of the difficulties of convalescence have their primary origin, not in the body, but in the mind of the patient."

One need not belabor the importance of this field today. Literally thousands of articles have found their way into modern medical and psychological literature which stress the psychosomatic elements in almost every kind and variety of illness known to mankind. The splendid works of Dunbar, Weiss, Spurgeon, and others will supply the reader with ample historical background should he desire it.

The important point to be considered here is just what part the clinical psychologist has to play in the care of the physically ill. How well equipped should he be to do his part? And, finally, what are the more important practices that he can be expected to perform?

There can be little doubt that all of the many varieties of psychologists are not equally well suited to work in a field in which a clinical orientation is essential. The problems of the acute and chronically ill as related to their disease have little appeal to the academic psychologist or to those who prefer to deal with psychological matters that are far removed from

the intact individual, in terms of the relation of his personality with his internal and external environment. We must look to the clinical psychologist, therefore, to be most representative of the type of professional worker best equipped to work with patient, physician, nurse, and the medical ancillary personnel engaged in the task of returning the patient to optimal health.

Today more than ever we are aware that there is a dearth of psychological personnel who can meet the many demands now being made. John G. Darley and Dael Wolfle (1946) have pointed out in no uncertain terms that present demands far exceed the supply of well-trained workers.

The one ray of hope which permits a certain amount of optimism regarding the future availability of clinical psychologists is the expressed desire of those who wish to enter this specialized field. Almost one third of all psychological personnel returning from military service in World War II have indicated that the clinical, counseling, and guidance fields are their first choice for further training (Britt and Morgan, 1946).

With the training program now being sponsored by the Veterans Administration and similar plans that must ultimately be evolved by other government agencies, there is no question that a decided impetus will be given to the training institutions that offer new and better curricula for those desiring to enter the clinical fields in psychology. On the other hand, increased job opportunity, augmented by increased professional status accorded them, will attract many who in years past might have refrained from entering this field of work.

While not all of those who are or who ultimately will be associated with the applications of clinical psychology will concern themselves with the physically ill, there is little doubt that a large proportion of them will do so. The principal mission of this section is to call attention to certain types of problems that the clinical psychologist working in hospitals caring for the acute and chronically ill can expect to encounter.

ADMINISTRATION

There is no general policy regarding the administration of psychological practice in hospitals taking care of the acutely ill or in specialized hospitals and institutions taking care of the patient with a chronic disease. As a rule, however, psychological service is made available through one of the following personnel:

PSYCHOMETRIST

The plan that uses the services of a psychometrist is still the most common but the least effective both from an administrative and patient point of view. Under this plan the psychological examiner (psychometrist) makes prescribed psychological examinations to ascertain the patients' mental competency, personality characteristics, vocational interests, aptitudes, etc. These activities are carried on usually, and required, by the physician or others whom he may designate as qualified to decide on the need for such diagnostic findings. Frequently the psychometrist has little or nothing to say about what is to be done, but may decide on the measuring instruments or tests that are to be used. To perform such services the examiner needs to possess skill in the use of tests, adaptability to the hospital environment, ingenuity in fitting the tests selected to the exigencies of the sickroom, and a personality which stimulates the patient to cooperate. It is occasionally possible for the psychometrist to assist in the analysis and interpretation of his results, but not unless he can show diagnostic skills above and beyond that which the medical personnel anticipate. This opportunity, if recognized and utilized properly, may greatly assist the psychometrist in "graduating" from a technician's status into that of a professionally recognized staff member. A year or two of hospital externship and a year of full-time intern status in a hospital having such a program under the direction of a trained professional clinical psychologist is the minimal background for success in this type of position. Academically, a master's degree in clinical psychology is essential. The standards now prevailing in the Veterans Administration for Clinical Psychologists at the P-3 grade (Miller, 1946) appear to be optimal. This attainment of high standard will probably not prevail in nongovernment hospitals until the "psychometric" concept of clinical psychology is abandoned, and the function of the psychologist is not merely at the technician's level.

PSYCHOLOGIST AS A MEMBER OF THE THERAPEUTIC STAFF

In this second and less common administrative plan for the use of the psychologist in the hospital, a great deal more training, both academic and clinical, is required. The standards for this type of position should be comparable to those established by the Veterans Administration for the grade P-5, or higher level of clinical psychologist. This status would

require the attainment of a doctorate in psychology as well as a minimum of five years of full-time experience in hospitals caring for both acutely and chronically ill patients. This experience must be with the physically ill as well as those with mental ailments. Not only does the individual who seeks to enter this field need a wealth of academic and professional experience, but he must have a high degree of diagnostic skill augmented by keen clinical judgment. The individual who succeeds in attaining a position of this type will generally be expected to organize a psychological department within the hospital or whatever institution he is serving. If the hospital is a large one he is likely to have one or more trained assistants, one or more internes, and perhaps several externes to supervise. There will be proportionately fewer colleagues in smaller hospitals. Some institutions may also place other activities under the jurisdiction of the head of the psychological department. For example, in one large institution for the tuberculous, the chief psychologist coordinates the services of the library, vocational therapy, shop training, motion picture, and radio, in addition to the services of the psychological program. Skill in handling the personnel responsible for these activities, as well as an understanding of the psychological values of the activities to the patient are highly important. From the point of view of the clinical psychological program, the chief psychologist is responsible for a psychological report on every patient assigned to his department for assessment. He analyzes and prepares an interpretative report for the use of the medical staff. Following the preparation of reports, further planning for the psychological care and treatment of the patient is developed in conference with the physician-in-charge or the medical staff. Such treatment will, of course, be concerned with assisting the patient in his recovery and in his readjustment toward living in an everyday environment or, in certain instances, to an environment essential to the maintenance of the patient's health.

PSYCHOLOGICAL EXAMINATION

PROBLEMS

To secure a psychological examination of one suffering from a physical disease will depend upon the success with which the psychologist is able to overcome certain basic difficulties. Somatic illness frequently requires that the patient refrain from any activity. If this is the case the psychologist must find out as much as possible about his subject and cause him little physical exertion. To accomplish this often requires considerable ingenuity. The psychologist must also evaluate the psychological effects of confinement in bed and medical treatment. These effects are significant in themselves and require knowledge of psychological therapy. But the goal of examination is measurement leading to adjustment after discharge from the hospital. The immediate environmental effect may introduce an artifact in examination detrimental to achieving this goal.

Another difficult problem connected with the examination concerns the time that can be utilized for a single testing period. Where the subject is not available for examination until he is semiambulant or ambulant, the examination can last an hour or longer without danger to recovery. But when therapy is necessary early in the subject's hospitalization great care must be exercised not to overtax his energy during an examination. Fifteen-minute limits are often desirable for test periods and psychological instruments should not be employed that cannot be completed within that time.

Rapport during examination is exceptionally difficult to achieve among subjects suffering from somatic disease. The patient in a sanitarium or hospital is different from the usual subject of the psychological clinic. His reactions are frequently those of "feeling apart" from people who are well. Therefore the problems of establishing *rapport* are exceptional. The psychologist can well afford to spend a good deal of time with the subject prior to examination in order to get acquainted, and should begin the examination only after *rapport* is established.

INSTRUMENTS OF EXAMINATION

Included in the psychological material for examination are instruments for measuring: (1) personality deviations (the Bell Adjustment Inventory, the Rorschach Test, Murray's Thematic Apperception Test, etc.); (2) general intelligence (the Stanford-Binet, Wechsler's Bellevue scale, etc.); (3) special sensory functions (visual perception, color vision, olfactory and gustatory discrimination, and the like); (4) interests (Strong's Vocational Interest Blank, Kuder's Preference Record, etc.); (5) educational and vocational achievement; and (6) special aptitudes, such as mechanical, musical, artistic, and manual aptitudes.

PROCEDURES

Two types of examination procedures are used for testing subjects in tuberculosis sanatoria and a similar

classification can be expected in hospitals for all chronically ill. These are associated with two views of medical treatment: (1) in which no extraneous psychological activity is allowed during the initial period of hospitalization; (2) where it is considered desirable that a program of psychological therapy suitable to the needs of the patient be established from the start of hospitalization and be expanded as the patient's physical progress permits. The latter view allows concurrent psychological and medical therapy.

PSYCHOLOGICAL EXAMINATION AFTER SUBJECT IS SEMI-AMBULANT

Medical treatment is well advanced when the patient is semi-ambulant. Coming at this time, the psychological examination can include the Stanford-Binet or the Bellevue-Wechsler test for measurement of intelligence. Sometimes an Otis S-A or the Pressey Senior Classification and Verification Tests is used for this purpose. Vocational interests are measured with the Strong Interest Blank or the Thurstone Vocational Interest Schedule, which have been scored for various occupations. The Bernreuter Personality Inventory or the Bell Adjustment Inventory usually completes the basic battery of tests for this examination as a measure of emotional and social adjustment. After personal interviews the more specific characteristics of vocational aptitude are measured by any of the standard tests fulfilling the requirements of the subject.

EXAMINATION SHORTLY AFTER ADMISSION TO THE HOSPITAL

In such a situation the psychologist comes in contact with his subject within two weeks after hospitalization. Certain difficulties in adjustment to the alteration in mode of life are usually beginning to manifest themselves at this time and the primary task of the psychologist is to relieve restlessness and worry. Full use is made of this opportunity to establish rapport and stimulate motivation for the subject to prepare himself to earn a living after discharge. Following early contacts, a limited psychological examination is given similar in scope to that described above. Tests are selected which do not overtax the subject physically or do not require continued effort. The Otis S-A in its short form (20 minutes) or the Pressey Senior Verification and Classification Test, is often used as the most expeditious method of measuring intelligence. Sometimes when writing is undesirable the oral portions of the Bellevue-Wechsler, the Binet, or the Kent Emergency tests are effectively used as a means of securing early data on intelligence. Instruments measuring personality are limited to those which do not develop the active resistance of the subject. Individual questions on cards that can be sorted into "yes" and "no" piles can be administered with far less difficulty than is experienced with the more formal inventories. Aptitude testing is limited during this early period to simple tests, such as the Minnesota and Thurstone Clerical, short vocabulary tests, and vocational aptitude measures which require little physical effort, or can be performed in bed with reasonable efficiency and satisfaction. More extensive testing takes place as the subject's exercise tolerance is increased, and repeated testing with different forms determines the degree of return to normalcy in psychological performance.

PSYCHOLOGICAL THERAPY

THE RECOMMENDATION

Where illness is concerned two sets of norms are necessary in order to be able to make a recommendation from the psychological examination: (1) general norms or distributions of individuals with whom the subject must expect to compete when he returns to his ordinary activities for an estimate of success in postsanitarium vocational endeavors; (2) patient norms or distributions of similar subjects that will yield a clearer understanding of the situation in which are introduced psychological alterations because of illness and confinement to bed. A comparison of the subject's score with the patient norms will minimize the possibility of reading into the examination results temporary effects of the environment. Recommendation from psychological examination is made in connection with the medical examination where such information as the degree of recovery expected is basic. A close cooperative study of medical and psychological findings by physician and psychologist is necessary before preparing a recommendation for psychological therapy.

OCCUPATIONAL THERAPY

Psychological therapy for adults with somatic diseases necessarily takes the form of occupational therapy including counseling and training. Ordinarily the subject will get along best after discharge in a vocation for which he already has some preparation. Frequently when he cannot return to his former occupation he can prepare for work in a closely related field. Vocational guidance of this order is desirable

so that the subject who is in a weakened condition may not become emotionally distraught by the task of facing an unfamiliar occupation with a prolonged period of training. A vocation that will require a minimum amount of time for training after discharge and that will fit in best with the subject's qualifications is the one to seek. Occasionally radical departures from this philosophy are necessary. If the subject has been unhappy in his former occupation or if it is too difficult for him, a new vocation can be chosen which best fits his qualifications, takes the least time in training, and in which he may earn while learning.

It is the need to earn while learning that has prompted the establishment of the Altro Workshop for tubercular patients by Edward Hochhauser (1942). The workshop provides, not only occupational training but earning opportunities during the period when a patient is making his transition from sanitarium to normal socio-economic life. Each year for the last twenty-five years many extubercular men and women have been placed directly in industry following a period of six months to a year spent in this unusual sheltered workshop. The amount of occupational exercise is gradually increased until the subject in training there reaches the stage where he can compete without difficulty with other workers in the vocation. Selection of vocation is based on psychological examination and training has the goal of efficiency with the least possible physical exertion. Such a procedure bridges the gap between the sanitarium and normal lifework. It has set the pattern for training in other somatic diseases.

LIAISON DUTIES

The psychologist is required to carry on broad community relations to help the subject with his social adjustment, not only while he is a patient in the hospital but after he is discharged. Liaison with rehabilitation agencies, placement bureaus, and agencies for public aid is necessary to an inclusive program of occupational therapy.

PROGRAMS IN TUBERCULOSIS SANATORIA

What psychological practice can do for those suffering from chronic disease is best illustrated in the modern tuberculosis sanatoria. Tuberculosis has come to the forefront in recent years as a disease in which psychological shares equal importance with physical rehabilitation. Starting from the concept that tuberculosis is a disease of the whole man and not merely of the respiratory system, combined medical examination and psychological examination has become routine practice. The psychologist, physician, and social worker collaborate in assembling the data necessary for a sound plan of therapy. The subject's vocational history, mental status, personality, aptitudes and interests in the vocational field, coupled with his medical and socio-economic findings, are used in planning the training program.

The medical treatment of tuberculosis is at best a long-drawn-out process. Also, the middle 50 per cent of men and women having tuberculosis are in the second or early third decade of life, which are periods when complete bed rest is not advisable, and when mental maladjustment can be expected unless psychological therapy is applied to ease the tension. It is therefore desirable, with due consideration for future life activities, that such therapy take the form of vocational training. Such therapy when directed toward economic independence after leaving the hospital is likely to maintain the patient's motivation and offers more assurance of a satisfactory recovery.

Hudson (1943), Hochhauser (1938), and many others have demonstrated the value of psychological examination and therapy to sufferers from the tubercle bacillus by returning them to normal life prepared to engage in vocational pursuits. More individuals are able to regain socio-economic stability, and recommitments to sanatoria as the result of recurrence of the disease have been greatly reduced through this practice (Stanton, 1938). Stanton (1940) emphasizes the importance of beginning psychological therapy with the tuberculous patient soon after discovery that he has the disease. He recommends the use of a battery of tests for the psychological examination: an intelligence test, the Humm-Wadsworth Temperament Scale, and an interest inventory of occupations considered most suitable for the tuberculous (prepared by Stanton on reports from federal and state sources showing occupations in which expatients have been successfully rehabilitated). This battery is followed by a second battery of special aptitude tests and measures of skills suited to the interests and potentialities of the subject. A manual on counseling by Holland Hudson and Rosetta van Gelder of the National Tuberculosis Association (1940) contains a wealth of data on tests, which are most useful with both the bedridden patient and the ambulant, and provides a psychograph specifically adapted to assembling test results for examination of the tuberculous.

The results of similar rehabilitational efforts among the orthopedically handicapped, the cardiac, and the

psychiatrically ill have begun to appear. For example, John Eisele Davis (1946) has published an interesting book on the rehabilitation of the mentally handicapped patient. Other books are appearing from time to time with the principal purpose of helping the patient as well as rehabilitation personnel, including the psychologist, to see the importance of such procedures (Yost and Gilbreth, 1944).

Most recently, Lowman and Seidenfeld (1947) have pointed out that the proper psychological care of the patient leads to a well-adjusted and normal mode of life, even among the most severely handicapped patients.

RESULTS OF RESEARCH

Research in a wide variety of diseases including diabetes, hypertensive cardio-vascular disease, rheumatic disease, the arthritides now covers a great deal of psychological information which in the past was largely overlooked. Dunbar (1943) is, to a large extent, responsible for stimulating this interest. Edward Weiss and O. Spurgeon English (1943) have brought to our attention recent investigations of the psychological elements present in nearly every category of organic illness. One cannot fail to recognize that psychological disturbances are likely to be concomitants and often precede all of the illnesses that in the past were held to be visceral disturbances alone.

The results obtained by investigators in the field of the psychology of the tuberculous is an example of what has been done. Eloise Young (1939) has collected the findings of leading medical writers regarding the psychological aspects of tuberculosis. She points out that tuberculosis by virtue of its long duration, social stresses, and financial burden fosters distress that can best be relieved by a program of reeducation for postsanitarium life.

Several comparisons have been made of the adjustment after discharge from the hospital of tuberculous subjects who did and did not have psychological therapy. Moore (1940) reported on forty relapsed subjects compared with rehabilitated subjects. While the groups were too small to permit any final conclusions, the results indicate that the psychologically, socially, and vocationally rehabilitated patients are better off financially, are occupationally more secure, and present fewer emotional difficulties after discharge than do those who are not given such aid. The California Bureau of Vocational Rehabilitation reports that 31 per cent of their tuberculosis patients have been rehabilitated occupationally and placed in a suitable job with a fair salary (Hicker, 1938). Seventy-four per cent for the period 1928–1936 were still employed in 1938. But of those for the same years who did not receive such rehabilitation only 34 per cent were still at work in 1938.

The tuberculosis patient usually has no mental pathology. His psychological difficulties are temporary and are alleviated by psychological therapy. A comparative study of the psychological characteristics of the tuberculous and a healthy population shows that only in subjects with advanced toxic symptomatology is one likely to find any significant deviation from the general population, according to the Otis S-A Test of Mental Ability (Seidenfeld, 1940). The Maller Personality Inventory revealed no evidence of any personality changes in the tuberculous that could not be explained by peculiarities of the sanitarium environment, social stigmatization, and worries resulting from socio-economic stress.

The results of research indicate that existing programs of psychological therapy for those suffering from chronic physical diseases, and particularly those programs taking the form of occupational guidance and occupational training, and ending in job placement, have real social value.

FUTURE VIEW

The mental background contributing to and accompanying organic disease has been recognized by physicians for many years. But only in the fields of the tuberculous, the orthopedically handicapped, and visual and auditory deficiencies has technical psychological aid been applied to help in the desired adjustment. This service could be utilized to advantage in the care of those suffering from other chronic diseases, namely, cardiac, diabetes, the asthmatic, and certain glandular deficiencies. The values to be attained cannot be overstressed when it is recognized that the sufferers are always faced with two serious psychological problems: (1) the necessary adjustment to prolonged periods of confinement in bed, and (2) the attainment of new ways and means of earning a living and reclaiming lost socio-economic security. Most of the somatically diseased need to continue to earn a living lest they become wards of charity and lose their self-respect and usefulness to society. Psychological examination and therapy, resulting in a program of training for an occupation suitable to physical capacity, serves generally to improve physical as well as mental outlooks, and human economy results.

Such research needs further extension and should include areas that thus far have been neglected. For

example, there is great need for more adequate research on the postconvalescent adjustment of patients to normal living; the study of work tolerance levels of the patient with permanent physical restrictions; determination of the psychological effects of environment in relation to the apparency of the patient's disability; and the study of the patient and the maintenance of his motivation during and after illness.

READING REFERENCES

Davis, John E., *Rehabilitation, Its Principles and Practice* (rev. ed.). New York: A. S. Barnes & Co., Inc., 1946.

Dunbar, H. Flanders, *Psychosomatic Diagnosis.* New York: Paul R. Hoeber, Inc., 1943.

Hudson, Holland, and Marjorie Fish, *Occupational Therapy in the Treatment of the Tuberculous Patient.* New York: National Tuberculosis Association, 1944.

Hudson, Holland, and Rosetta Van Gelder, *Counseling the Handicapped; A Manual on Aptitudes: Their Discovery and Interpretation.* New York: National Tuberculosis Association, 1940.

Miller, J. G., "Clinical Psychology in the Veterans Administration." *American Psychologist,* 1946, **6,** 181–189.

Weiss, Edward, and O. S. English, *Psychosomatic Medicine.* Philadelphia: W. B. Saunders Company, 1943.

Yost, Edna, and L. E. Gilbreth, *Normal Lives for the Disabled.* New York: The Macmillan Company, 1944.

80. COMMUNITY CHILD GUIDANCE CLINICS

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STAFF AND FUNCTION

Community child guidance clinics date from a cooperative project undertaken about twenty-five years ago by The Commonwealth Fund and The National Committee for Mental Hygiene. From 1922 to 1927 demonstration clinics were conducted in seven cities in different parts of the country. Thereafter clinics were continued by these cities and established by others, with financial support from local resources such as community chests, while state departments of health or mental hygiene, hospitals, and school systems soon began to establish clinics in the smaller communities. By 1946, according to data gathered by The National Committee for Mental Hygiene, at least 300 full-time or part-time child guidance clinics were serving children in that many communities.

From the beginning the professional staff of the child guidance clinic was composed of psychiatrists, psychologists, and psychiatric social workers, whose function was originally conceived as providing these professional services in a unified program for the prevention of delinquency. Early during the demonstration period, however, a trend developed toward the current point of view, namely, providing clinical services primarily for children of average or superior intelligence, but with a wide range of difficulties in personal or social adjustment. The child guidance clinic today generally offers its combined psychiatric, psychological, and social work services to children and adolescents who present a variety of problems. Delinquent or predelinquent behavior is only one of the many types of maladjustment for which children are referred (Witmer, 1940).

The functions of child guidance clinics vary somewhat according to the needs of the community. A clinic situated in a community where the public schools employ a psychologist to diagnose mentally deficient children and to recommend special class placement, and where clinics are available for educational or vocational guidance, speech training, remedial teaching, etc., devotes most of its time to psychotherapy with children or adolescents and to social work with their parents. On the other hand, a clinic located in a community which has no other psychological service may give considerable time to testing mentally deficient children and to educational therapy, such as speech training and

remedial teaching. However, Witmer's survey (1940) indicates that the coordination of psychotherapy for children and of social work among parents is generally considered to be the chief function of the child guidance clinic.

Nevertheless, it would be misleading to imply that this function is the only one, even in the most highly specialized child guidance clinics for none has a large enough staff to utilize this time-consuming approach with every child and his parents. Furthermore, many parents who seek help for their problems with their children do not want more than consultation service. In the Philadelphia Child Guidance Clinic, for example, in spite of its being well known for therapeutic work with children, consultation service to parents is given far more frequently than the coordinated services of psychotherapy and social work. Rogers (1939) stated that intensive social work with parents and a little therapy with children was the usual procedure in certain clinics while in others therapy among children consisted of removal from their homes and placement in foster homes or institutions among from one- to three-fifths of the children. In short, the functions of child guidance clinics vary considerably and are influenced by the size and training of the professional staff, the types of problems referred, and the presence or absence of other clinical services in the community.

NUMBER OF CHILDREN AND TYPES OF PROBLEMS

The number of children for whom some type of service is provided annually amounts to between 200 and 300 for clinics in smaller communities to between 500 and 800 for clinics in larger cities. The Philadelphia Child Guidance Clinic is probably fairly typical for a large urban center. In 1946 it rendered services to 750 children (467 boys, 283 girls) who were referred as follows:

By parents directly	300
By parents at the suggestion of physicians	160
By parents at the suggestion of schools	154
By parents at the suggestion of social or health agencies	103
By social agencies acting as legal guardians	33

The problems for which children are referred may be illustrated by data from an unpublished survey of psychiatric services for children in Philadelphia. The chief problems of 458 children referred to the Philadelphia Child Guidance Clinic during a six-month period were classified as follows:

Eating poorly or refusing to eat	13
Enuresis or soiling	21
Thumb-sucking or masturbation	8
Truancy from school or home	80
Doing poor school work, though of good intelligence	40
Special educational disability	8
Refusal to attend school because of fear	7
Restlessness and hyperactivity	37
Temper tantrums	56
Fighting, bullying, overaggressive behavior	20
Behaving irresponsibly	19
Stealing or sex delinquency	36
Psychosomatic symptoms	14
Personality disorders	73
Possible psychosis	10
Speech disorders	16

The above classifications, except personality disorder, are self-explanatory. Personality disorder includes children who withdraw from social contacts, suffer from phobias, are unhappy or depressed in mood, etc. While the classification was based on what was regarded as the chief complaint about the child at referral, in actual fact the children frequently had more than a single problem. For example, many who did poor school work or had an educational disability were also behavior problems in the classroom or showed symptoms of a personality disorder, and there was similar overlapping in other categories so far as individual children were concerned.

GENERAL CLINICAL PROCEDURES

During possibly the first ten years of its history, the usual procedure of a child guidance clinic was to take the child's social history, and make medical, psychological, and psychiatric examinations, which were followed by a case conference at which were formulated recommendations to parents, teachers, or other adults concerned with the child's daily life. Often intensive social work by the clinic social workers with the parents was recommended. This approach was based upon the assumption that if changes in the child's environment, especially in his home, could be secured his emotional responses

would be altered and so would his behavior and other symptoms. Gradually this concept was replaced by the point of view that the child with behavior difficulties or neurotic symptoms was likely to have more or less severe emotional conflicts and that the parent-child relationships contributed to his problems. This change in point of view naturally led to a modification of clinical procedure with the result that therapeutic work with the child and social work with the parents were coordinated.

This therapy-social work approach requires that the child have regular appointments with a therapist at least once a week and that the parent have similarly frequent appointments with a social worker. The length of time that these regular appointments continue varies among individuals from a minimum of from 2 to 6 months to 12 to 18 months, or even longer when the child's problem is very severe or parental attitudes and relationships are extremely complicated.

As the demand for clinic services increased much more rapidly than clinic staffs could be enlarged, this time-consuming process could not be employed among all the children who were referred. Moreover, it became evident that many parents did not wish to bring their children for therapy but rather desired an opportunity to talk over certain situations in connection with a child. Thus as a result of the time limitations of the clinic staff and a greater awareness of the kind of help that parents were seeking grew a shorter consultation service to parents. This help may consist of a few interviews with the parent only but usually also includes a few appointments with the child. In the Philadelphia clinic, the number of parents who come for consultation service in which the child is seen only two or three times is larger than the number who bring children for therapy.

RESPONSIBILITIES OF THE PSYCHOLOGIST

When child guidance clinics were first established, other clinical resources were fewer in most communities than they are today. To meet community needs twenty-five years ago, the child guidance clinic psychologist often had to assume responsibility for educational and vocational guidance, remedial teaching, and the like, as well as examine each child as part of an initial case study. In the early years of child guidance, therefore, the psychologist's time was fully occupied with well defined duties. With the growth of psychological and educational clinics there has been less demand in many communities that the child guidance clinics include educational guidance or remedial teaching among their services. Also, the routine psychological examination of every child has been abandoned in many child guidance clinics in favor of using the testing for diagnostic purposes only. Thus the psychologist's time came no longer to be filled with work clearly belonging to his special professional field, and the question, what place shall the psychologist have in child guidance clinics, inevitably arose.

Certain clinics answered it by limiting the psychologist's job to part-time, while others retained the psychologist full-time and added psychotherapy to his duties. The latter plan was usually followed when the clinic psychologist's professional background and training warranted assigning children to him for psychotherapy. Witmer (1940) found that in many child guidance clinics the psychologist devoted more time to psychotherapy than to psychological examining. In certain clinics, however, the psychologist still gave a large share of time to special psychoeducational projects, as is illustrated by Arthur's (1946) account of her experience in supervising remedial teaching among children who were poorly adjusted in school or had special educational disabilities.

PSYCHOLOGICAL EXAMINATION

The tests used in the psychological examination include individual intelligence scales, standard tests of educational achievement, reading tests, tests of special aptitudes, etc. The Rorschach test and other projective techniques are also employed in many child guidance clinics. The amount of testing done varies. When testing is limited to children who are tested for a specific reason, as is the practice of the Philadelphia clinic, about one fifth of the children who come during a year are given a psychological examination.

SELECTION OF CHILDREN FOR EXAMINATION

The psychological examination is indicated for children who have not been recently examined and for whom there is a history of poor school work or difficulty in mastering a particular subject, such as reading or arithmetic, when there is a developmental history suggestive of the possibility of mental retardation, or when there is a type of speech defect which might be associated with mental deficiency. An examination may be made later if need for it

should appear from the therapist's work with the child or the social worker's contact with the parents.

INTERVIEWING

Interviewing may be a part of the psychological study, serving as an aid in the estimation of the child's intelligence when negativistic attitudes or other obstacles to good cooperation during testing have produced unreliable test results (Blanchard, 1941). For example, interviews in which young children are observed at play often are of value in supplementing the formal psychological examination in order to secure an estimate of the child's intellectual status. Older children and adolescents are frequently interviewed after the psychological examination to discuss practical plans for a solution of their educational problems. It is important for adolescent boys and girls to participate in decisions concerning remedial teaching or a change in their school work, since the success of such measures depends upon their cooperation and they are more likely to cooperate if permitted to help make the decision.

PSYCHOTHERAPY

Considerable responsibility is assumed by the psychologist who gives the psychological examinations, but when children are seen for psychotherapy still more professional responsibility is assumed, for the skills and techniques involved are far more complex than those demanded for the administration and interpretation of tests. While children may be somewhat fearful or resistive to being brought to a clinic for psychological examination, a few minutes friendly conversation and explanation of the tests is often sufficient to set them at ease and secure their cooperation. Much greater anxiety or resistance is apt to occur when a child is brought for psychotherapy, especially if he is poorly prepared for the experience by the explanations received from parents. The therapist must be versatile in meeting the child's initial responses at the beginning of therapy for what is then done will influence its further course greatly (Blanchard, 1940).

The content of tests and definite rules for giving them serve as a guide to the psychological examiner, in deciding what to say and do with a child. What the therapist says and does must grow out of the content of the interview and the behavior of the child who is simply given an opportunity to talk about himself, his interests, troubles, and feelings at the same time that he is permitted to use play materials, if he is still young enough to enjoy play activities. In other words, what is said or done with a child in therapy is infinitely more varied and individualized than when examining him psychologically. There is a fine point, too, in timing what is said or done, for the child must be ready to face the implications of his symptoms or behavior in terms of the underlying emotional attitudes that motivate them before he can be helped to do so by explanations offered by the therapist.

There is also the matter of evaluating when a child has made as much progress as possible or as necessary, and is ready for the termination of therapy. Criteria for determining when therapy is to be completed are less well defined than those for considering a test completed, and this calls for greater individual judgment to be exercised by the therapist. Moreover, a child has far more complicated feelings about leaving therapy than about finishing a psychological examination, because he has had a long and intimate relationship with the therapist compared with the brief contact during the psychological examination.

When psychotherapy is coordinated with social work with parents, as it often is in child guidance clinics, there must be close collaboration between the therapist and the social worker. Besides a continuous exchange of information, conferences are necessary to decide what might be called strategy in meeting crises that arise at times during therapy or social work. For example, it is sometimes good "strategy" for the social worker to see both parents instead of one of them or to invite parents for a conference with the therapist who is seeing the child. The psychologist can see the parents of a child who has been examined without giving much thought to the child's attitudes toward this if he is not to be seen again. If engaged in therapy with the child, however, the psychologist must consider whether an interview with the parents will be too disturbing to the therapeutic relationship. Again, the parents' attitudes toward terminating therapy have to be taken into account as well as the child's, so that especially close collaboration between the therapist and social worker is necessary at the end of the coordinated therapy and social work.

SELECTION OF CASES FOR PSYCHOTHERAPY

Attempts have sometimes been made to formulate criteria to use in selecting certain types of problems for assignment to the psychologist (Gardner et al., 1942). A common suggestion has been that

the psychologist should specialize in therapy with children who have educational problems. This suggestion is good insofar as it is based upon the consideration that the psychologist usually has had more training and experience in dealing with educational maladjustments than either the psychiatrist or the social worker. It does not achieve another purpose sometimes intended: to reserve for the psychiatrist therapy with those children who are severely neurotic, for neurotic conflicts may be the primary cause of trouble with school work or of special educational disabilities (Blanchard, 1936, 1947).

Another method of selection is to have every child first seen by a psychiatrist for diagnostic study and then to assign to the psychologist those considered suitable. While this plan has the advantage of insuring that psychotherapy for children with severe neurotic symptoms would remain in the hands of the psychiatrist it has other serious disadvantages. In theory, it is possible to speak of diagnosis and therapy as if they were separate functions but in actual practice the beginning of a therapeutic relationship does not wait upon the completion of diagnostic observations (Witmer, 1947, p. 61–62). While the first few interviews with a child offer an opportunity to form an impression of the nature and severity of his problems, the therapeutic relationship is inevitably being started at that time. Even if the person seeing the child thinks of his interview as diagnostic or observational, the child's emotional responses are not controlled by such considerations. Some degree of relationship is initiated, as is always true during an interpersonal contact. Hence when a child is first seen by a psychiatrist before assignment to a psychologist, it imposes the necessity of giving up one relationship and beginning another, with consequent loss of time in therapy.

Whatever the theoretical considerations as to the types of problems that are most suitable for the psychiatrist and psychologist respectively, the reality of overcrowded clinic schedules ordinarily forces a fairly wide variety of cases on the psychologist. The fact that the psychologist may thus start psychotherapy with some children who prove to have more severe difficulties than was anticipated is not of great concern in child guidance clinics, where psychiatrists are always available for conferences and the few children who prove to be psychotic or prepsychotic can be transferred to a psychiatrist. Moreover, child guidance clinic psychologists usually have had special training for psychotherapeutic work through psychoanalysis and/or a period of doing therapy under close supervision of a psychiatrist.

PSYCHOLOGICAL PRACTICE

The two following reports are given to illustrate the use of (1) psychological examination and interviews and (2) the child therapy combined with social work with the parent: A detailed account of the interviews with the child in the second illustration and considerable discussion of therapeutic techniques employed has been published in "The Case of Tommy Nolan" (Witmer, 1947).

COMBINED PSYCHOLOGICAL EXAMINATION AND INTERVIEWS

A fifteen-year-old girl in Grade 9B was referred by the school counsellor because she was failing in French and was uncertain whether to continue an academic course or transfer to a trade school. In conversation with the psychologist, she spoke of her good marks in all subjects except French but said that she thought she was "too dumb" to learn a language. Since a certain amount of language work was required in the academic course, she thought it would be wise to request a transfer to trade school, where she could take up dress design in which she was interested. Her school counsellor had suggested that she postpone decision about a transfer to trade school until she had tests at clinic.

This girl's score of 134 on the Terman Group Test for Mental Ability was equivalent to the mental age 16 years 5 months, and an I.Q. 107 on the basis of her life age of 15 years 4 months. On one of the Lewerenz Tests in Fundamental Abilities of Visual Art (test 2, originality of line drawing) she drew some well proportioned human figures, indicating that she might be able to do well in fashion drawing or dress design. She made average or superior ratings on most of the tests in the Lewerenz series.

The girl was told that the tests indicated that she had mental ability for completing an academic course in high school as well as special artistic ability that probably would enable her to be successful at dress design. It was therefore suggested that she finish high school before studying dress design. It was further suggested that she have private tutoring in French. She was unable to reach any decision about plans for further education but asked for repeated reassurances that the tests rated her as at least average in intelligence. The psychologist suggested that she think over the test results for a few days and then come for another interview.

When she came for this next appointment, she had

assimilated the information about the test results. She said that she had been wondering why, if not "dumb," she had had trouble with French. Encouraged to talk more about it, she recalled that at the time she started this subject she had had less time than usual to devote to school work. Her mother had just died and she was trying to keep house for her father as well as to attend school. In the middle of the term her health had broken down under the strain of the dual responsibilities and she had spent several weeks in the hospital. After she recovered, an aunt assumed responsibility for the housekeeping. Then she returned to school and caught up in all her subjects except French. The psychologist commented on what a bad start she had in that subject and again mentioned the possibility of tutoring. The girl replied that she did not believe she needed it. Her teacher had offered to help her with French after school and she thought this help would be sufficient. She decided that if she improved in French she would finish high school.

A report from the school counsellor at the end of the term stated that the girl passed all her work, including French, and was intending to continue in high school.

CHILD THERAPY AND COORDINATED SOCIAL WORK WITH PARENT

A mother came to the clinic for help with her only child, a seven-year-old boy, who was crying frequently in the morning before starting for school and having trouble with his work in the 2-A grade, in spite of rating slightly above average on intelligence tests recently given at school.

The boy seemed a little timid when introduced to the psychologist at his first visit but soon was engaged in drawing on the blackboard in the psychologist's office. The only unusual behavior was his failure to smile at all; his facial expression always remained sad. In further interviews, he drew, played with toys, or did school work, as well as talking freely with the psychologist, but seemed like a very unhappy little boy because he continued never to smile. His drawings indicated that he was highly gifted artistically but his efforts to do school work revealed that he had a specific disability for reading and spelling words due to faulty methods of word recognition. He was trying to learn words by depending entirely upon a visual memory of them and did not associate the spoken word with the written one. Following a trial of remedial teaching by the psychologist and regular remedial teaching in a special reading class at school, his ability to read and spell improved rapidly. Nevertheless he continued to appear unhappy, although he spoke of school as if he liked it and liked his teachers.

Meanwhile, in her interviews with the social worker, the mother explained the boy's unhappiness on the basis of dislike of school. She described herself as a good mother and implied that the family life was peaceful and harmonious, except that she once spoke of her husband as "having lost another job." The psychologist and social worker decided that the mother should be told that the boy in his interviews expressed a liking for school and that she should be asked if she could think of anything outside of school to account for the boy's being unhappy.

At first the mother denied that there could be any other reason than the school situation but later she began to wonder if anything in her own relationship to the boy might be affecting him unfavorably. She burst into tears as she told how she had sometimes punished him but insisted she did that only when he behaved badly. She continued to complain of his bad behavior as a reason for punishing him for some time but never could recall an illustration of his being bad. A few weeks later, she reported that because of her husband's continued unemployment she had been forced to go to work and talked about her husband's failure to provide for the family.

After this, she recalled that the times when she had punished the boy were when she was upset and irritable because of her worries over financial matters. In succeeding interviews, she spoke of her fear that her son might grow up to be as irresponsible as his father and told how she had felt she must break him of any bad habits to prevent this from happening. She then remembered that the mornings he had cried while getting ready to go to school were those on which she had scolded or whipped him. It was not long after this that she realized that she had been taking out on the boy her anger at her husband. She told her husband how she felt about his unemployment and returned to report that he had immediately begun to look for work and had found employment.

In the meantime, the boy had talked to the psychologist about his bewilderment over his mother's punishments. He said that she punished him sometimes and not others when his behavior had been the same. The psychologist mentioned that mothers often felt cross if worried or tired and the boy replied that his mother did complain of being tired or nervous. In his next interview he stated that he was trying to play outside when his mother seemed nervous or tired so as not to bother her and have her get cross at him. A little later he commented that his mother did not seem so

nervous and cross and that she was not working any more. He added that she no longer punished him. He began to smile and laugh in his interviews and seemed happier.

Shortly afterward, the therapy was ended, with the father still at work, the mother knowing that she had taken out her marital troubles on the boy, no longer considering the boy badly behaved, and the boy appearing carefree and happy as any child of his age should be.

ADJUSTMENT RESULTS IN CHILD GUIDANCE CLINICS

There are several follow-up studies on the adjustments obtained as a result of the professional services of child guidance clinics. More than twenty years ago, Witmer (1935) attempted to find statistical evidence in the follow-up data from four different clinics as to what factors could be correlated with successful or unsuccessful outcomes. No reliable statistical evidence was found to show that differences in economic background, in age, or sex of the children, or in the symptoms for which they were referred influenced success or failure. Intellectual status appeared to be a significant factor, since there were slightly more failures among children with I.Q's under 70. Information coming largely from clinic social workers indicated that the presence of satisfactory marital and parent-child relationships differentiated successful from unsuccessful adjustments more reliably than any other factor. The number of children followed up and the percentage found to be satisfactorily adjusted or "improved," as determined by follow-up reports obtained from 6 months to 5 years after the children and their parents had ended clinic appointments was as follows:

	Number of Children	*Percentage of Improvement*
Judge Baker Guidance Center	54	84
Institute for Child Guidance, N.Y.	197	72
Minneapolis Child Guidance Center	43	74
Guy's Hospital, London, Child Guidance Center	63	68

Healy and Bronner (1939) reported the adjustment of 400 children seen at the Judge Baker Guidance Center between March, 1931, and January, 1934 and followed up from five to eight years later. In this study, 81 per cent of all the children were found to have had favorable careers after the termination of their visits to the clinic but a larger proportion of favorable results was reported for those who were nondelinquent than for those who were delinquent —approximately 91 per cent for the former and 70 per cent for the latter.

Shirley, Baum, and Polsky (1940) compared the status, as evaluated at the close of clinic contacts, of 85 children from the Worcester Child Guidance Clinic with their status as ascertained by follow-up from 3 to 7 years later. The closing evaluations showed 35 children had improved during attendance at the clinic while 50 had not improved. Of the 35 who had improved, 60 per cent were still well adjusted, 23 per cent less well adjusted and 17 per cent poorly adjusted. Of the 50 classed as unimproved, 56 per cent remained in that category while 28 per cent showed improvement and 16 per cent were well adjusted, at the time of the follow-up. In evaluating the factors related to the change in status, the investigators found differences in parental attitudes very prominent. In a large proportion of the children considered unimproved when they left the clinic, but who had improved at the time of follow-up, the parental attitudes toward the child had become more favorable; in many instances in which the improvement noted at closing had not been maintained, the parental attitudes had altered for the worse instead of for the better.

At the Philadelphia Child Guidance Clinic figures were compiled (1944) on the status of 218 children for whom repeated follow-ups had been obtained over a period of from 5 to 10 years after the termination of therapy. These children were selected for intensive follow-up because their problems had been more serious than those of the average clinic child. The data at the time of the latest follow-up report are as follows: improved, 145, or 67 per cent; unimproved 71, or 32 per cent; and deceased 2, or 1 per cent.

It may be of interest to mention that these children had received psychotherapy from three members of the clinic staff: a psychiatrist, a psychologist, and a social worker who had had special training for therapeutic work with children. When there was a divison into smaller groups of those seen by each of the three therapists, the figures for improvement and unimprovement varied by no more than 1 per cent from those given above for the total group.

SOCIAL VALUE

The child is a developing organism psychologically

as well as physiologically and there are many points in his growth when critical events in his family or other social situations may interfere with the smooth course of his development. The nature of the child's problems, the realities of his daily life during and after clinic contact, and many other variables will affect his adjustment as much as or more than the work of the clinic. Children are dependent upon adults for support of healthy development and all too often are subjected to life situations which, ideally speaking, no child should be called upon to endure. The best psychotherapy cannot protect the child against such realities nor can it insure that he will be able to withstand them without damage to his personality and mental health; at most, it can only give him a somewhat better chance of doing so. Nevertheless, the professional services of the child guidance clinic may help a child and his parents to make reasonably satisfactory adjustments, sometimes even to difficult life situations, and the reports of better adjusted children are evidence of the social value of those professional services.

READING REFERENCES

Arthur, G. A., *Tutoring as Therapy*. New York: The Commonwealth Fund, 1946.

Blanchard, P., "The Importance of First Interviews in Therapeutic Work with Children." *Smith College Studies in Social Work*, 1940, **10**, 267–284.

———, "Interpretation of Psychological Tests in Clinical Work with Children." *Mental Hygiene*, 1941, **25**, 58–75.

———, "Psychoanalytic Contributions to the Problem of Reading Disabilities," in *The Psycholanalytic Study of the Child*. New York: International Universities Press, Inc., 1947, Vol. II.

———, "Reading Disabilities in Relation to Difficulties of Personality and Emotional Development." *Mental Hygiene*, 1936, **20**, 384–413.

Gardner, G. E.; W. Mason Mathews; Robert A. Young; and Simon H. Tulchin, "Present Day Trends in the Functions of the Clinical Psychologist—Round Table Discussion." *American Journal of Orthopsychiatry*, 1942, **12**, 383–404.

Healy, W., and A. F. Bronner, *Treatment and What Happened Afterward*. Boston: Judge Baker Guidance Center, 1939.

Rogers, C. R., *The Clinical Treatment of the Problem Child*. Boston: Houghton Mifflin Company, 1939.

Shirley, M.; B. Baum; and S. Polsky, "Outgrowing Childhood's Problems: A Follow-up Study of Child Guidance Patients." *Smith College Studies in Social Work*, 1940, **11**, 31–60.

Witmer, H. L., "A Comparison of Treatment Results in Various Types of Child Guidance Clinics." *American Journal of Orthopsychiatry*, 1935, **5**, 351–360.

———, *Psychiatric Clinics for Children*. New York: The Commonwealth Fund, 1940, Chaps. 3 and 12.

——— (ed.), *Psychiatric Interviews with Children*. New York: The Commonwealth Fund, 1946.

81. CHILD DEPENDENCY

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Dependent children are those whose families are unable to provide for their complete care and maintenance according to standards acceptable to the community. Approximately a million children in this country meet this description. About three-fourths of these remain in their own homes, receiving supplementary assistance from federal or state funds for needy children. Their difficulties are primarily economic and when the family relationship is otherwise satisfactory there is little occasion for the services of the psychologist.

COMMUNITY CARE

Approximately 287,000 dependent children are taken care of through children's institutions or child-caring agencies. It is in the community planning for this group that the services of the psychologist primarily are useful. The homes of these children have been

broken psychologically, as well as economically and legally, and the parents have proved themselves unable or unwilling to provide adequate care. Among these children are orphans, those whose parents have separated or deserted the family, those whose parents are deemed unfit by the courts, and illegitimate children whose natural parents do not retain custody.

LEGAL CONTROL

The social organization responsible for the protection of dependent children is the court. The courts are vested with the authority to decide whether the child shall be removed from his parents, whether parental rights shall be terminated, or whether the child shall be the ward of the court or some other child-caring agency. Through adoption the court may create a legal relationship between the child and his substitute parents.

RESPONSIBLE AGENCY

In actual practice the major part of the task of looking after the welfare of dependent children is assumed by public and private child-caring agencies, such as Aid to Dependent Children offices under the Social Security Administration, state and local children's aid societies, religious and charitable children's homes, and similar organizations.

PLACEMENT

INSTITUTIONS. The majority of dependent children are cared for in institutions housing from a dozen or so to several hundred children. In recent decades there has been a tendency to decentralize the orphanages and to establish smaller cottage units which may simulate a natural family group in the range of ages and the mingling of the sexes.

BOARDING HOMES. The increasing emphasis on the desirability of home life has resulted in the wider use of boarding homes. These are homes in the community which agree to care for one or several children in return for a fee paid by the agency. The boarding fee is usually sufficient to cover little more than food and actual maintenance of the child. Clothing and medical care are generally provided by the agency but the extras, such as toys and small luxuries, are frequently the contributions of the boarding parents or friends.

FREE HOMES. Certain children are placed in free homes. Depending on the interest of the family in the particular child and on the degree to which they are able to participate in the costs of care, the arrangements range from a remission of fees, with the agency still responsible for clothing, medical care, and general supervision to complete responsibility by the foster family, short of adoption.

WAGE HOMES. Frequently older children are placed in wage homes where they earn their own maintenance, receive a small wage, and are trained in housework, farming, and other duties. This arrangement often serves as an intermediate step between the protection of an institution and complete financial independence as an adult.

ADOPTIVE HOMES. The most nearly complete substitution of family ties occurs when the child is placed in an adoptive home. Occasionally foster parents who offer a boarding or free home to a child may become so attached to him that adoption is completed. Generally, however, there is an expressed intention to adopt, and the child is placed in the home with this eventuality in mind.

PRIVATE PLACEMENT

In many cases a child is placed in another home directly by his parents. This arrangement is made, for instance, when a child goes to live with a relative who is better able to provide a home and schooling. Adoption does not always follow and the relationship between the child and his own family is frequently maintained. It may occur under less favorable circumstances when an unmarried mother gives her child away to an unknown couple who were suggested through devious channels. The hazards of such a procedure can hardly be overemphasized. Often there is not a legal abdication of parental rights and the foster parents cannot successfully maintain their claim to the child. The child's right to a normal home is not safeguarded since foster parents who cannot pass the scrutiny of a social agency frequently resort to this means of securing a child, and the foster family itself has no assurance as to the desirability of the child it is receiving into the family circle.

ROLE OF PSYCHOLOGIST

The first effort of a social agency in the typical case of child dependency is to keep the family intact. The psychologist may be called upon to assist the case work agency in the evaluation of the family and their ability to maintain the home unit. When it becomes necessary to terminate the parental responsibilities the entire planning devolves on the agency which accepts the children for care. Recognizing the need for assistance from any qualified source, child placing and child caring agencies call on all specialists, including psychologist and physician, for their special contribu-

tions as consultants. The actual carrying out of the program, however, remains in the hands of the social worker.

SOURCES OF PSYCHOLOGICAL SERVICES. Child caring and placing organizations sometimes have their own full- or part-time psychologist, but the majority depend on the services of a child guidance center or behavior clinic. Examination of dependent children is but a part of the work of such a community resource. Certain agencies find it possible to arrange for careful psychological study of the children in specially equipped observation centers while others are limited to the sketchy results of a psychological test.

PSYCHOLOGIST'S CONTRIBUTION. The contribution made by the psychologist depends in general on the degree of interplay between his skill and experience and that of workers in the agency which cares for the child. His specialized contributions relate to the placement and training or care of dependent children in (1) adoptive homes, (2) boarding homes, (3) free homes, (4) wage homes, and (5) institutions.

ADOPTION

Although adoption can and does occur at any age, the great majority of adoptees are infants or children of preschool age who had been placed in infancy. It is generally agreed that early placement in a permanent adoptive home offers a dependent child the best chance for security and that sense of belonging to a family group which is essential to good emotional development. Since a wide difference in intelligence between foster child and parents is one of the most frequent sources of disappointment and friction, some risks can be minimized by careful selection with regard to intelligence at the time of placement. This necessitates examination of mental level at an early age to predict the future rate of intellectual growth. The responsibility for this examination and evaluation is entrusted to a psychologist before the placement is made.

PSYCHOLOGICAL EXAMINATION OF INFANTS

The testing of infants under one year is accompanied by difficulties not present at other age levels. Language is absent, the child's motor coordination is incomplete, he has a limited range of interests and activities, and his attention span is brief. The test items are behavior responses that can be observed or that can be elicited by materials which have intrinsic appeal, since young children are masters of passive as well as active resistance. The problems of standardization are greater than at the school ages since infants and young preschoolers are not generally available for research purposes.

TESTS. Tests have been devised which are useful in determining the extent to which a given child conforms to or deviates from the pattern of skills and attainments typical for his age. For children under two years of age the intelligence tests in most common use are the Kuhlmann infant tests (1939), the Gesell Developmental tests (1941), and the Cattell Infant Scale (1940). It is possible to arrive at an estimate of developmental level as early as one or two months.

PREDICTION. It is often difficult to distinguish between the slower rate of development found in the constitutionally mentally inferior child and what is sometimes called pseudo-retardation resulting from an unstimulating environment. The test results are supplemented by reports of those who have the daily care of the child. The child's developmental history is scrutinized and the quality and manner of his present responses are evaluated. Sometimes there is only a clinical hunch which questions the objective test results, but if the examiner has worked carefully with hundreds of children this may be based on insight which is not to be ignored. The hunch can be tested by placing the child in a situation rich in intellectual stimulation, and observing whether improvement follows.

PRESCHOOL TESTING

With children of preschool age, the tests mentioned may be supplemented or replaced by the Terman-Merrill tests or other measures of general ability. Dependence on a single test is hazardous at any age. The information about a child derived from performance tests such as the Merrill-Palmer is of distinct value, particularly when a child has lived in a linguistically impoverished environment, or when his emotional or social adjustment is so poor that responses to verbal tests are unsatisfactory.

PSYCHOLOGICAL RECOMMENDATION

After the tests have been given, the scores and the child's developmental and environmental history evaluated and interpreted, a decision has to be reached regarding the adoptability of the child. The actual recommendations will reflect, to some extent, the psychologist's faith in the relative significance of environment or true-family background. Although in no case would the placement of mentally defective children in a normal home be countenanced, the psychologist with the greater faith in the influences

of true-family status would probably require a higher level of ability in the child before recommending placement in a given home. The environmentalist is likely to insist however, on a more stimulating type of foster home for a given child! Published studies of changes in I.Q. following the placement of a child in a better, more secure, and stimulating home, agree that the changes are in general upward and improvements of from 20 to 40 I.Q. points are not uncommon. For this reason it is possible to count on a certain margin of safety in recommending children for specific homes. Underplacement, arising from an overly conservative view of a child's potentialities, can create as serious problems as overplacement.

USUAL PRACTICE. Rules of thumb are always dangerous, but certain ones would probably be generally acceptable in practice, with the recognition of special cases where the usual policies do not apply, as follows: (1) infants under one year who show any degree of retardation are not candidates for adoption except under very exceptional circumstances; (2) only infants who show early above average development should be considered for homes of high intellectual and scholastic requirements; (3) between the ages of one and three, children showing borderline retardation are not adoption candidates; but (4) children who are average or somewhat below may be considered for homes of laborers, unskilled workmen, and small farmers whose own level and whose expectations will not exceed the child's ability as predicted at the time of placement. For professional homes or homes where some college education is anticipated, 110 I.Q. should in general be the minimum.

PERSONALITY

While it is important to determine the child's present and possible future intelligence, it is equally important to know something of his personality and his ways of reacting under varying situations. The intelligence test gives a good opportunity for observation of a child under somewhat standard conditions. How does he react to failures? Is he erratic, difficult to interest, aggressive, destructive, or is he unusually persistent, ingenious and creative in the use of materials? Is his memory span average for age? How does he respond to strangers? Does he seem insecure, need affection and emotional support? Can he establish friendly relations quickly and easily? How does he react to prohibitions? Observed answers to these questions must also be supplemented by the reports of nurse or boarding mother. With a summary of the results of these observations and study of the whole child, the social agency is better prepared to search for the particular home which can most nearly fulfill this child's needs.

NATURAL PARENTS

The psychologist is responsible in many cases for the examination of the natural parents who are releasing the child. Some social agencies will not place a child of mentally defective parents for adoption and in these instances examination of the parents is important in determining whether the child is accepted for care at all.

The mental and educational status of the parents is considered by many social agencies to be one of the indications of quality of family stock. The value of mental tests of parents in predicting the child's intelligence has been challenged by recent studies which underscore the influence of differences in experience and environment on whatever inheritable substrata of intelligence, personality, and character there may be. There is slim justification for including family history and true-parent intelligence in the computation of the child's developmental quotient, a practice fairly common in the past. At the same time this information is difficult to ignore. Of two children whose own mental development is equal, even the most extreme environmentalist would be inclined to recommend that the child of more intelligent parents be placed in the more intellectual of two foster homes.

Contacts with the natural parents are usually limited to intelligence testing, although vocational guidance or personality counseling may be offered in cases where there is an attempt at rehabilitation. General intelligence tests most frequently used include the Terman-Merrill, 1916 Stanford-Binet, Wechsler-Bellevue, or one of the many group tests. Where more intensive guidance is planned, school achievement, mechanical, clerical and other personality measures and interest inventories, and aptitude tests may be used as in the clinical study of any adult.

FOSTER PARENTS

In few cases do psychologists participate in the appraisal and selection of foster parents. There generally are more applications than available children and the preliminary screening on the more obvious economic, social, moral, and physical requirements for adoptive placement is not difficult.

The selection of a specific home for a specific child, however, is a more intricate problem. In organizations where the psychologist works closely with the agency, or is a member of it, he is frequently

called on to assist in the selection of a home on the basis of his observation of the child's needs. For instance, one child may need the centralized attention found in homes where he will be the only child. Another may adjust better with somewhat less demonstrative foster parents in contrast to one who needs outgoing warmth and much expression of affection. Clinical skill in recognizing emotional maladjustment in the prospective foster parents and their possible inability to understand and meet the needs of children is assumed to be part of the psychologist's contribution.

Where a preplacement examination of the child has been made, and where the child is given a follow-up examination before the final completion of adoption, it usually is the psychologist's responsibility to interpret the test findings to the foster parents. There are frequently questions concerning the inheritability of certain traits and the prediction of the child's school achievement. There are always questions on habit training and child development. Because of their genuine concern for the welfare of the child they have adopted and because of the drive to have a perfect family, many foster parents are insecure and overanxious. Assurance of their ability to handle the situation is as much needed by them as practical suggestions on feeding, toilet habits, and temper tantrums.

BOARDING HOMES

Children in boarding homes range in age from the new born awaiting adoptive placement to the adolescent for whom foster home care is part of planned therapy. Among the infants and children under two years of age there are those who cannot immediately be placed in permanent homes for medical or legal reasons. Many agencies require a period of observation if there is mental defect in the immediate family. Where the child's own development has shown some retardation or unexplained fluctuation a similar observation period is arranged. The psychologist's frequent retests and observations are essential to prevent this waiting period from lapsing into meaningless delay.

PRESCHOOL CHILDREN

There are usually relatively few preschool children in boarding homes. If preschool children are qualified for adoptive placement, this is not difficult to establish and suitable homes can be located with little effort. Preschool children who remain in boarding homes fairly permanently, are either medically not qualified for adoption, as in the case of syphilitic children, cripples or serious cardiac cases; they have shown mental retardation which precludes adoptive placement; or they have family ties which have not been severed.

Among children in boarding homes whose family ties are maintained, insecurity and emotional conflicts are frequent, especially if visits from parents or weekend trips away from the boarding home are unwisely handled. With these children, in addition to the observation of the child's mental development, the psychologist can give much assistance to the boarding parents and to the child's case worker through interpreting the causes of problem behavior, facilitating better understanding of the child through explanation of behavior normal under the circumstances and giving a more objective evaluation of the particular child's limitations and capacities. The psychologist's knowledge of the principles of child development should lead to suggestions on habit training, the management of eating problems, temper tantrums, methods of stimulating intellectual growth, encouraging independence, and all the multitudinous problems connected with child training.

SCHOOL AGE CHILDREN

The majority of boarding children are of school age. Since they have usually spent their early years in homes which later disintegrated, or in institutions which may be detrimental to a child's best development, or in a succession of boarding homes, it is not surprising that, as a group, they are somewhat below average mentally, have school difficulties, and have a disproportionate number of emotional and behavior problems. The psychologist is faced with guidance problems which are complicated by the absence of family connections or the possibilities of stable home life. The child frequently has never had normal affectional relationships with any adult. The need for psychotherapy, special education or remedial instruction, and group adjustment is far greater than any agency or psychologist in this work has been able to meet in the past.

OLDER CHILDREN

With older children in boarding care, the psychologist assists with educational and vocational guidance. For the majority, plans must be directed toward early financial independence since few agencies are able to provide boarding care for their charges beyond the very early 'teens. However, when a psychologist has close contact with an agency's case load it is

possible to arrange for more individualized plans than the indiscriminate assigning of boys to farms and girls to free or wage homes as mothers' helpers. The psychologist can act as a liaison officer between the school and school counselors on the one hand and the boarding home and agency on the other. Through the use of information secured by interview, by academic, mechanical, or clerical aptitude tests, and case data, guidance can be given in accord with specific needs, as for any child at the high school level.

BOARDING PARENTS

While there are many children who remain in the same boarding home for years, occasionally even into adulthood, more often the child is moved several times during his dependency. The consequent loss of security, sometimes accompanied by resentment at separation from siblings or own parents, gives rise in many children to all types of symptomatic behavior. There must be a constant interpretation to the boarding parents of the forces and experiences which the child had undergone before coming to the present home so that the new parents may understand and be better fitted to direct the child's behavior. Child training problems of all types are accentuated among boarding children, especially those who lived in unsatisfactory own-homes for some years. Boarding parents, case workers, and teachers need all the help the psychologist can offer with regard to such problems as untruthfulness, petty thievery, destructiveness, carelessness, moodiness, bed wetting, irritability, shyness, sex problems, and the general management of a dull or an emotionally unstable child.

THE FREE HOME

The problems of the child in the free home are similar in nature to those of both the child in the adopted home and in the boarding home. In general the psychologist's contribution consists of observations of mental development, educational progress, and social and emotional adjustment, and of recommendations based on the findings.

THE PARENTS

The fact that free home parents assume all responsibility for the child, but withhold the final assurance of legal adoption, may create problems not only for the child but for the foster parents, as is illustrated by the following:

Jerry had been placed with the *S* family at three years of age. The child was available for adoption but the *S*'s kept postponing completion from year to year, wishing to be sure the boy would turn out well. When he was about twelve, Jerry began to wonder why his name on some legal papers was not the same as the one he used in everyday life. He discovered that legal adoption was not completed, that he "had no right to the *S* name." The price for adoption was then set by the *S*'s as continued good behavior and "a boy who is a credit to our name." There had been no previous dissatisfaction with Jerry, but following this doubt of his behavior and loyalty he became unreliable, associated with boys who "borrowed" cars, was in several wrecks and other serious escapades. Finally, the foster parents arranged for boarding care and later military school. The boy joined the Navy as soon as he was able. The relationship between the boy and his foster parents improved somewhat, partly because he had no other family ties, and partly because, as a member of a famous battle-unit, he can at last "bring credit on the family."

Occasionally wavering families must be urged either to assume the entire responsibility of the child and his problems through the years, or to give up the child to a home able to accept him more wholeheartedly.

WAGE HOMES

The purpose of wage homes is to provide a transition between the boarding home or institution and independent life in the community. Children who have had clothing and spending money come to them through the somewhat impersonal channels of an agency, and who have little occasion to see the relationship between work, financial reward, and the fulfillment of one's desires, need the wise guidance of wage home parents.

THE CHILDREN

All the normal adolescent problems of managing money, relationships with the opposite sex, dating, hours, quitting school, and attitudes toward teachers, parents, parent substitutes, and all those whom the youth considers to be in positions of authority are found among these children. Some wage home parents who are unwilling to seem dictatorial will ask that a child be removed rather than to struggle to a solution of these common problems. The resulting feeling of failure and inadequacy makes the child's next adjustment still more difficult. The psychologist assists both the youth and the adults to a better understanding of adolescent needs and behavior.

There are certain techniques of home management which contribute to a youth's increasing self-reliance and these can be pointed out in contrast to ways which encourage dependence and immaturity on the one hand or aggressive rebellion on the other.

THE PARENTS

In contrast to foster parents of boarding, free, or adoptive homes, wage home parents do not usually offer the child a real or secure place in the family circle. The common attitude is that the child is emotionally self-sufficient, as many are, and that the primary purpose of his stay is to give him training which will lead to financial independence. One of the primary tasks is to interpret to the adults the youth's need for love, affection, and patient understanding. The objective is the encouragement of the best aspects of the apprentice-mastercraftsman relationship.

INSTITUTIONS

More than half of all dependent children cared for outside their home are in institutions of all sizes and varieties. Some give only the minimum essentials of shelter, food, and clothing, while others have complete facilities for observation and therapy of children showing behavior problems. The atmosphere, even when there is every effort to duplicate home life, is artificial and unfavorable to the best development of most children. There is general agreement that the average infant or preschool child, or the normal older child, whose chief problem is lack of home and family, should be cared for in foster homes.

SPECIFIC ADVANTAGES

The institution has a definite place, however, in assisting children with certain types of adjustment problems and institutional care has many specific advantages for certain children. It offers a controlled environment with unique opportunities for study and treatment of behavior deviations. From a practical standpoint it is only in an institution that it is possible to arrange 24 hour observation and guidance.

The somewhat impersonal atmosphere is often successful in training children who have established faulty habit patterns in early years. During the retraining period a child is more comfortable when he is an anonymous member of a group rather than the center of attention in a boarding home. There is less need for face saving resistance to change. Group life gives opportunity for learning to get along with others, and when properly managed and combined with individual therapy can result in the development of independence and self-confidence. The child can be assisted in attaining social acceptability through group influences, thus preparing him for placement in a foster home.

In an institution there are many adults with whom the child comes in contact, each with different personalities. It is the rare child who cannot find someone on the staff who fills the role of best friend. To find that he is loved, that someone cares, is the first step in the child's emotional rehabilitation.

DUTIES OF INSTITUTIONAL PSYCHOLOGIST

The well integrated cooperation of a highly skilled staff is necessary to attain these objectives for every child in the institution. The specific responsibilities of the psychologist vary, but generally they touch on all duties which concern the child's adjustment. Intelligence, aptitude, and school achievement tests are given routinely soon after the child is accepted, if not before. The child is interviewed to determine his interests, his social and emotional adjustment, and his general maturity. Assignment to cottage or living groups and school placement is made on the basis of a conference including the medical supervisor, the case worker, the personnel officer of the institution, and the psychologist. Plans are formulated for the child's entire day: his play, work, cottage responsibilities, associates, and adult contacts. It may be the responsibility of the psychologist to see that the plan is put into operation, that all the adults involved understand the child and appreciate the objectives of the plan for him, and that the whole program functions smoothly. When changes are necessary, these are under the direction of the psychologist, who may request a conference to reevaluate the total situation for the child. Through his contacts with the child and the general overview of his total adjustment, the psychologist is in a strategic position to make recommendations as to when transition to boarding or wage home is desirable.

In addition to assisting individual children, psychologists on the staff of an institution may have a major role in determining policies with regard to cottage responsibilities, allowances, clothing, disciplinary problems, and intramural academic and vocational training programs. Although frequently given administrative responsibilities the psychologist is often the staff member most free to deal with the children on a friendly and sympathetic rather than an authoritarian basis.

TECHNIQUES

SECURING COOPERATION

The techniques of testing children for adoption do not differ from good testing practices for children of similar ages under other circumstances. With infants and preschool children, it is usually preferable to make the examination at home even though it is inconvenient and expensive in time for the examiner. Not only can the examination be conducted in a more natural setting for the child but the opportunity for observing him with his own toys and playthings offers an excellent check on the test results.

When reasonable precautions for obtaining *rapport* are observed the difficulty of obtaining satisfactory test results with young children will be found to have been overemphasized. Complete refusal to cooperate is rare and may be more indicative of need for specialized treatment than any test score. The problem of refusal no doubt exists in greater measure when tests are given in a formal or forbidding testing room and when there is an attempt to adhere to a rigid order of test presentation.

FLEXIBILITY IN TESTING

Testing of young children must be flexible. What appeals to one is distasteful to another. No one test is the best to begin with, although nonverbal tests are in general preferable to verbal ones. Hard tests must be interspersed with easy ones since few things can banish a child's interest and attention more quickly than a succession of failures, especially toward the end of a testing session when he is tired. For a very active child the tests must be presented rapidly. With others, the items may have to be inserted gradually as part of his own play. Unless there is a clear-cut failure it is often advisable to repeat failed or refused items later in the testing until a decision has been reached as to whether the child really cannot do it or was at first merely uninterested.

This need for flexibility and ability to make changes in order and manner of presentation without changing the essential character of the test makes it imperative for the examiner to know what he may do and what he must not do if the test results are to be comparable to established norms.

ENVIRONMENTAL INFLUENCES

Children who have lived in institutions or in homes where there is considerable personal neglect are occasionally so unfamiliar with toys and strangers that they seem unable to make the most elementary response. Babies and young preschoolers may have lived under such emotionally damaging influences that they cannot yet make any approach to adults, however friendly. The previous environment may have been so unstimulating intellectually that no child could have attained normal development in it. Marked or frequent changes of residence, with the necessity of complete reorientation to people and routines, may not only have influenced the rate of mental growth but may have made the child suspicious and resistive and thus account for variations in scores from one examination to the next. The psychologist working with children whose checkered backgrounds have resulted in their dependency must have a working appreciation of the many factors influencing human development and human adjustment.

GENERAL OUTLOOK

RESEARCH

One of the major contributions of psychologists in this area is made through research studies conducted concurrently with daily services. Investigation of the mental development of foster children and of the effects of institutional life on personality adjustment illustrate the possibilities. The findings are significant for all who deal with children, at home or in the community. The social laboratory existing in child care programs can aid in the solution of many problems of human development and adjustment.

TRAINING

In few situations do the psychologists' findings and recommendations have as direct a bearing on individual destiny as in planning for dependent children. The tests and observations may determine whether the child is adoptable, and by what manner of foster parent, or whether he will spend his days in a succession of boarding homes or institutions. The highest skills of the clinical psychologist are required, including letter-perfect familiarity with mental testing, and skills in observation methods, diagnostic testing, and projective techniques. There should be a thorough knowledge of all phases of normal as well as deviant child development. Specialized courses shoud be accompanied by observation and practice in schools, infant clinics, nursery schools, orphanages, and play groups. Professional training supplements the kindliness toward people and a special love for children which is assumed to be a fundamental characteristic of workers in this field.

Psychologists interested in the care of dependent

children work in many settings and with varying degrees of responsibility. The extent to which their contributions are effective is governed largely by the adequacy of their professional background and the quality of their relationships with workers in the related disciplines.

READING REFERENCES

Brooks, Lee M., and E. C. Brooks, *Adventuring in Adoption*. Chapel Hill: University of North Carolina Press, 1939.

Goldfarb, W., "Psychological Privation in Infancy and Subsequent Adjustment." *American Journal of Orthopsychiatry,* 1945, **15,** 247–255.

Roe, Anne; B. S. Burks; and Bela Mittelman, *Adult Adjustment of Foster Children of Alcoholic and Psychotic Parentage and the Influence of the Foster Home.* New Haven: Memoirs of the Section on Alcohol Studies, Yale University, 1945.

Skodak, M., and H. M. Skeels, "A Follow-up Study of Children in Adoptive Homes." *Journal of Genetic Psychology,* 1945, **66,** 21–58.

Theis, Sophie Van Senden, *How Foster Children Turn Out.* New York: State Charities Aid Association, 1924.

CHAPTER XIII

PENOLOGY

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82. CRIME

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The reference frame within which a psychologist works in the field of crime is constructed of man-made laws. Man has attempted to achieve for his mutual associations that law and order found in the physical world. There are no direct natural laws that make all of man's relationships to man harmonious and highly predictable. Nature, working through the desires of different persons, produces a marked state of disorder and conflict when men do not make and enforce their own laws.

Delinquents and criminals are the result of attempted enforcement of man-made laws. They are regarded by applied psychologists as maladjusted in life situations and as the products of faulty habit formations in terms of man-made laws. In this section the problems of understanding and preventing crime are viewed in a general way in an attempt to fix the points of reference in social organization to which the applied psychologist may relate his recommendations of treatment of criminals.

CONTROLLING BEHAVIOR BY LAWS

One individual's desire, a product of the interaction of forces from both within and without himself, may be opposed to a desire of another individual. Such oppositions arise from two situations: (1) the same object, possessable only by one, is desired by the other, and (2) the same act is a satisfaction for one participant and a frustration for the other. When the desire conflicts of two or more individuals are externalized, they are a matter of concern, not only to the individuals involved, but also to other people. The question of whose desires may be satisfied is raised. At times the group steps in to regulate the ways in which desires may be gratified, and the regulations are based on a desire consensus of the individuals in the group (Metfessel, 1940).

EXTERNAL CONTROL

Regulation of human acts, however, cannot be achieved for all human beings by fiat. Individual differences are so great that the desires of a few individuals will not be in agreement with the desire consensus of the many. The demonstrated result has been a failure of any general system of required and forbidden acts to enforce itself. So groups have established means by which a strong attempt is made to force individuals to act according to the standards of the group.

Groups attempting to standardize behavior may have two kinds of power: sovereign power and moral power. Sovereign power implies ability to punish physically without being punished in return. Physical punishments include bodily pain, bodily confinement, and deprivation of material possessions. Moral power is demonstrated by the ability to punish mentally by such means as words, gestures, silence, or ostracism. The limitation of moral power lies in the ability of persons to be impervious to it when it is applied. Crimes—violations of those acts forbidden or required by groups with sovereign power—in most cases are acts for which moral power is not sufficiently effective in the control of nearly all individuals.

BEHAVIOR STANDARDS VARY

The work of crime prevention obviously is dependent upon what acts are to be prevented. Sovereign groups do not agree on their behavior standards in different times and places. G. Stanley Hall in 1904 pointed out that modern criminals could have been normal and perhaps quite useful citizens in the days of Abraham and Ulysses. Sellin (1937) has shown that

definitions of crimes in a given society vary with conditions of prosperity and depression. The work of the psychologist is either to adjust individuals to present-day requirements or to take a part in persuading the sovereign group to change the standards.

Changes in the definitions of specific crimes occur quite frequently, but for the most part they involve the less serious crimes. Homicide, rape, armed robbery, and assault—offenses against persons—are far more resistant to change than motor vehicle code violation, liquor law violation, gambling, and drunken or disorderly conduct (Gorsuch, 1938). The more serious crimes are felonies—acts calling for incarceration in a reformatory or penitentiary—and the less serious crimes are misdemeanors which are punishable by fine or by a short jail term.

The felonies probably arouse stronger fear and anger in a large number of people than do misdemeanors. When an individual hears about murder, rape, or armed robbery, he is more likely to be deeply stirred than when he considers petty thefts, traffic offenses, or drunkenness. The presence of an emotion probably indicates a frustration and a mental conflict (Guthrie, 1938). The conflict may be resolved by punishment of the offender when the punishment appears appropriate to the strength of the emotions of the interested members of the public.

CRIME DIFFERS FROM IMMORAL ACTS

Nearly all crimes are regarded as wrong at the time that they are considered crimes, but history shows that wrongs, like crimes, vary from time to time and from place to place. Socrates, Savonarola, and John Huss broke the laws of their day, but at the present time their acts are regarded as neither criminal nor wrong. On the other hand, not all acts that are regarded as wrong are either misdemeanors or felonies. A university may have certain regulations for students, a profession may set up ethical standards, churches may define sins, or a society may distinguish between moral and immoral acts. In a broad sense these are rules for which observance is called "right" and infraction is called "wrong."

It is possible that immoral acts are less frustrating to a large number of people in a society than are those acts the same people define as crimes. When an individual believes "there should be a law" prohibiting an act frustrating to him, his success in changing the immoral act to a crime may depend upon how many other people are similarly frustrated.

MOTIVATIONS OF CRIMINALS

DESIRES AND CRIMINAL ACTS

A key question the applied psychologist attempts to answer in a study of criminal offenders is: What did he desire when he broke the law? Dunlap (1934) has developed a convenient and workable classification of primary desires. Did the offender attempt to attract attention to himself and secure the plaudits of others? Was his crime the outgrowth of an attempt to conform to the requirements of his gang? Did the offender attempt to satisfy alimentary desire? Did he act to protect himself? Was he merely satisfying activity desire? Was he looking for shortcuts to a life of ease? Was he attempting in any way to gratify amatory desire?

Though some crimes are found to be motivated by single desires, the motivating conditions are complex in most crimes. A desire of the moment should be considered in the setting of the life pattern of desires of the criminal. The pattern generally consists of one or two dominant desires with others of lesser weight to the individual. In a few persons satisfaction of alimentary urge is the dominant desire; as long as they have food and drink of their own choosing, their other desires are relatively unimportant. Others revolve their lives around amatory desire and they are frustrated little in other directions, where a minimum of satisfaction is all they require. There are those who are dominated by preeminence desire; food, amorousness, and rest occupy a relatively minor position in their lives. So it is with each primary desire.

DESIRES BECOME DEMANDS

The dominance of a desire or two in an individual's life pattern leads to demands. Desires become demands when they symbolize individual integrity to the individual himself. Individual integrity may be defined as a person's private attitude that he is important (not necessarily superior) as an entity. The frustration of a demand is taken as a frustration of the total individual. For example, if a person has a demand for preeminence, any restraint of that demand is regarded, not as a simple restrained desire but as a frustration of his whole being.

Individuals vary greatly in both the number and strength of their demands upon life. Some have few demands, and they are relatively weak. Others have few demands, but those in evidence are strong. Those with many demands also vary in the strength of their demands from very weak to very strong.

DEMANDS AND RESTRAINTS

The satisfaction of an individual's demands in ways forbidden by groups with sovereign power or moral power is counteracted by various forms of external and internal restraints. External restraints are such objects as vaults and locks, or sometimes other individuals. Internal restraints primarily consist of fear of physical punishment or fear of disapproval. Restraints no less than demands may be tied to an individual's integrity, and like demands, restraints vary in number and strength from individual to individual.

An individual with numerous strong demands and with few weak restraints may be said to present a greater probability of criminal behavior than one with a small number of weak demands and many strong restraints. Poffenberger (1942) stated, "There is an important psychological difference between behavior that results from an overpowering impulse that breaks through all resistance and behavior that results from a moderately strong impulse that meets only weak opposition or no opposition at all."

The first line of resistance against criminal acts can be found in the internal restraints set up in individuals by groups with the power of approvals and disapprovals. Generally the psychologist does not approach the problem of crime prevention by any attempt to increase internal restraints. Instead he assists the individual in a reorganization of either his demands or of his methods of satisfying present demands. The problem is attacked directly or indirectly through the frustrations that reveal the demands.

FRUSTRATION AND AGGRESSION

In order to understand the aggressions of people we may look to their frustrations. Aggression may take numerous socially approved forms in the satisfaction of demands, but the aggressions that present problems are unapproved and abnormal forms, such as overtly fighting the source of frustration (psychopathic method), reacting against the restraining environment by devious and symbolic means (psychoneurotic method), avoiding the deterring influences by a retreat from reality and behaving as if restraints did not exist (psychotic method), or simply satisfying a demand regardless of consequences.

Aggression may result in a circular frustration. To illustrate, *A* satisfies his demands in a situation in which *B* is frustrated, *B* in turn sets out to frustrate *A*, and if he succeeds, *A* starts the cycle again. Sometimes the sovereign group (in connection with which a circular frustration by definition is impossible) has to intervene to put an end to the continuing and often increasing disharmony. When any form of aggression becomes in effect a defiance of the behavior requirements of the sovereign group, the result is delinquency or crime.

The cues to the psychological approach in the prevention of crime and in rehabilitation of convicts may be found in the interpretations of various correlates of crime by Dollard, Miller, Doob, Mowrer, and Sears (1939). These Yale collaborators have developed the frustration-aggression hypothesis to the point where it is possible to achieve greater insight into the meaning of such crime correlates as age, sex, race, and nationality, and subnormal intelligence. The studies indicating the correlates themselves may be found in a review of the technical literature by Metfessel and Lovell (1942).

AGE. Reckless (1940) has shown that the number of crimes committed by individuals of various age groups increases sharply through adolescence, reach a maximum between the ages of nineteen and twenty-four, and decline thereafter. In terms of the frustration-aggression hypothesis, the decline in the number of crimes with increasing maturity may mean that the level of frustration of individuals also declines, that is, their demands tend to decrease in number and strength, or are satisfied more and more by socially approved outlets. At the same time, responsiveness to the threat of punishment increases, which is to say that internal restraints tend to become stronger and more numerous.

SEX. Males, as compared with females, are convicted of crimes to a significantly greater extent than the approximate 50-50 ratio of the sexes. The accepted standards of masculine behavior in our society include aggressiveness in approved occupations. The greater size and strength of men as compared with women, and the child-bearing capacity assigned by nature to women, may have been the original factors in the greater competitive role played by men in our social structure. Frustrations encountered by men may result in a greater number of criminal aggressions, in part because of the larger number and variety of such opportunities offered in their extra-home competitions.

RACE AND NATIONALITY. Such racial differences in the convict population as have been found in certain cases may be considered in terms of the different frustrations encountered by various races. In those studies in which it has been found that the first

generation of foreign-born immigrants to this country have a significantly greater number of delinquencies than other children, two interpretations are possible. The environment of immigrants and their children may be more frustrating than is the case with others, or the discrepancy between the conduct norms (Sellin, 1938) of the former country and the United States could have the effect of diminishing the effectiveness of parental guidance, with a decrease in the number and strength of restraints.

PHYSICAL TRAITS. In certain instances physical deficiencies have been related to delinquency and crime, although no broad generalization can be made. Sutherland (1939) referred to the indirect place of physical defects in delinquency by calling attention to the ridicule sometimes occasioned by such defects. Physical deficiencies could tend to increase the amount of frustration encountered, and in terms of the frustration-aggression hypothesis increase the probability of antilegal aggressions.

SUBNORMAL INTELLIGENCE. At the present time it is not possible to make any general statements of the relationship of intelligence and crime. In individual cases, and in restricted groups in certain jurisdictions, mental ability may be just sufficient to permit the individual to enter into competitive enterprises, but not enough to culminate in successful approved performances, with increased frustration as a result. Dollard et al. (1939) have suggested that the threat of punishment may not be as effective among those with low intelligence as with others, but there may be a counteracting influence in a low level of aspiration which is likely to accompany subnormal intelligence.

OVERCOMING FRUSTRATIONS

Accepting the hypothesis of frustration-aggression as a basis upon which to work, the cues found in a consideration of the correlates of crime may be exploited. Change from a more to a less frustrating environment appears to be the most obvious method of reducing frustrations, but such changes are not always practicable, and the socially disapproved habits and means of satisfying demands may still remain. From the cues afforded by age differentials in crime, that with increasing maturity people tend to arrive at a balance between demands and restraints conducive to law observance, methods of psychological procedure may be gathered. What happens in the normal course of events with most individuals with increasing age may be introduced by the psychologist at an early age for crime prevention or after conviction in cases of rehabilitation.

SUBSTITUTION. That a demand satisfied through antilegal aggressions may be gratified by the substitution of legal methods is of particular importance in crime prevention. Therapy may be started by a consideration of the affinity of a demand and the prohibited method of satisfying the demand. That affinity can be reduced by setting up a connection between the demand and an approved means of gratification. The young delinquent with a demand for attention can be shown means whereby he can get attention without resorting to misbehavior. The overt expression of aggressions by talking out frustrations, by harmless symbolic acts under competent guidance, and by a redirection of aggression into approved competitive work have been successfully applied.

RE-EVALUATION. The substitution of an approved method for satisfaction of a demand often requires that the individual accept a specific failure in order to gain a more substantial victory. Hence substitution of demand outlets often is difficult or impossible without reevaluation of the pattern of demands. This may take the course of tying up another desire to individual integrity, together with a renunciation of the frustrated demand. Renunciation occurs when the active acceptance of a frustration is regarded by the individual as essential to the maintenance of his feeling of personal worth. The extent to which demands may be renounced, as a result of the application of psychotherapy, has been pointed out by Guthrie (1938). An extreme illustration of demand renunciation is found among people who will risk their lives when they are led to believe that such a risk is necessary to accomplish a goal evaluated as greater than life itself.

ATTITUDES OF CRIMINALS

The affinity of a demand with a means of satisfaction in defiance of standards of the sovereign group is characteristic of criminals. Also characteristic of criminals are attitudes that these unapproved means are right for them. Criminals perform feats of mental gymnastics, known as mechanisms or dynamisms, by which they attempt to convince themselves and others that they are "in the right" when they commit a crime. In general, the various dynamisms tend to reduce the effectiveness of internal restraints. If the criminals are aware of any defiance of authority, they bury it under a mass of self-justification. In effect, they set their individual integrity against

group sovereignty, and strangely enough, they get emotional support from commonly accepted ideas of right and wrong.

SELF-DECEPTION

The case of Winge (Bjerre, 1927) is typical of many self-deceiving criminals. Winge was firmly entrenched in the belief that he was an unusual sort of individual and that because of his remarkable personality he was created to enjoy a life of ease and wealth. He found answers that satisfied him in justification for his crimes. When he committed a series of petty thefts of property belonging to his employer, he decided that such a happy gentleman secretly would approve of the thefts because he wanted others to enjoy life. When he murdered a postman for registered mail, he led himself to believe that he was doing the postman a service. Was it right that an old man should have to tramp the streets with his burden? in effect was the question Winge asked.

The self-satisfied group of criminals to which Winge belonged generally are men who within themselves are adjusted to life. Ordinarily they are capable individuals with sufficient mental ability to be successful in normal life pursuits.

FEAR OF RESPONSIBILITY

Other criminals are aware of an inadequacy of some kind. They are afraid of life; they use all the ideas at their command to avoid responsibility to the sovereign group for their acts. Their crimes often are the result of an overcompensation growing out of desperation. They project on others their failure to adjust and they indulge in flights into fantasy.

Faber, who had a fantasy of an empire of crime and who was put to death by the State of Massachusetts for murder, reported that he was continually restless and craved an accomplishment of an extraordinary nature. He was disturbed because his physical frailty kept him from college athletics. He claimed that society taught him how to strive but not how to cooperate with others. In a word, he projected the blame for his acts on an education that he thought made him ambitious beyond his capacities.

Gunnarsson was an example of the unhappy and inadequate group of criminals who hate those who appear to them to be strong and satisfied with life (Bjerre, 1927). For years he had been able to avoid responsibility through secrecy and varied mental devices, but when forced into a situation in which he had to assume responsibility for an unborn child he became desperate and murdered the mother. Actually his hatred of mankind in general was focused upon the girl. Bjerre concluded that Gunnarsson thought he was freeing himself from all responsibility to anyone for all time when he committed the murder.

The task of the psychologist in changing the attitudes and beliefs of criminals is one of bringing them to the position of viewing themselves and their acts as other people regard them. This is accomplished by pointing the way directly or indirectly to methods of maintaining individual integrity in accord with the means used by most people.

HANDLING OF OFFENDERS

A situation that must be faced is that psychological procedures with criminals are in an early stage of growth, and that general use of them will be gradual. Furthermore, it should not be overlooked that what is accomplished occurs in a setting that assumes the influence of groups with moral power and sovereign power.

A study of the frustrations of individuals leading toward criminal aggressions is in a sense onesided, for one is then dealing with only a small minority. The psychologist studies not only why men break laws but also why men make laws. Following through with the frustration-aggression hypothesis, it becomes evident that the acts of criminals are frustrations to the large majority of people. In a civilized society the aggressions aroused by criminal acts have been controlled by formal laws and by a division of labor in law enforcement, with police officers, courts, and places of confinement taking the place of individuals who might retaliate against those who make them victims of crime.

The control of aggressions of the large majority of people in response to criminal acts has been quite effective. Relatively few individuals are frustrated by lawbreakers. Most individual reactions to criminals in civilized societies arise from what happens to someone else; rarely is a person so disturbed by depredations that he calls in the police. Individuals usually are apathetic about crime.

THE TOLERANCE LIMEN AND LENIENCY

A particularly atrocious crime or a concentration of thefts in a small neighborhood in a short period of time may arouse the individual members of a community to demand more efficient enforcement of the laws and increases in the severity of the penalties for their violation. The point at which individuals comprising a dynamic majority of the public begin

to feel insecure and develop aggressions from the acts of criminals is termed the public tolerance limen. If feelings of security of a large number of people have not been threatened, the public tolerance limen will be high even though serious crimes may exist. If there is a feeling of insecurity, the limen will be low and even less serious crimes will not be tolerated.

Man's inhumanity to man appears when individuals are frustrated. When a large number of people with sovereign power are frustrated inhumanity is considered crime and the offender is punished. The measures for the treatment of offenders that reveal man's humanity to man have been introduced when the public tolerance limen was not exceeded. The fewer crimes there are that frustrate the sovereign public, the more lenient is the treatment of those who commit crimes.

The humanitarian trend throughout history is in the direction of leniency. The history of punishment of criminals *en masse* has proceeded from easy and inhumane methods, such as whipping, mutilation and death, to more difficult and relatively humane methods. The use of prisons, reformatories, and parole involves the establishment of systems that require much money and effort, as compared with the quick handling of aggressions toward criminals by whipping or putting to death. The inhumane and the more humane methods have been equally effective in controlling human acts.

DETERRENT EFFECTS OF IMPRISONMENT

The sovereign group is in the position of punishing those for whom fear of punishment had little restraint. But at the same time the fact that men are imprisoned for crimes probably has a strong deterrent influence upon others. The evidence of outbreak of crime during police strikes, earthquakes, and floods is clear in support of this point. Furthermore, to state that fear of punishment does not prevent all crime is not to say that fear of punishment prevents no crime. Modern methods of handling criminals include a minimum of punishment without losing the threat of punishment to deter persons from becoming criminal who are not now under present systems of control.

REHABILITATION

Punishment has had little value as applied in the past for the prevention of further crime on the part of those actually punished. Criminals have not been controlled by fear of punishment and they have satisfied their demands in spite of threats. Any attempt to increase internal restraints would appear to have little likelihood of success. In addition, the frustrations encountered by ex-convicts when they reenter civilian life increase their difficulties.

The modern treatment of men in prison is based on the assumption that incarceration itself is sufficient punishment without subjecting prisoners to humiliation and brutality. As prisoners have privileges, which can be taken away when the rules of the prison are broken, it is possible to maintain discipline provided the calibre of the wardens and the guards is adequate to the situation. There are, of course, those who do not respond to any known kind of handling except that of isolation from other prisoners. By introducing educational facilities, particularly training in occupational skills, further progress is being made in rehabilitating criminals in prison. A movement to secure employment for men trained in prison is under way, but in many instances it is necessary to supplement the educational work of the prison with psychotherapy in order to reorganize the prisoner's life motive.

INDIVIDUAL HANDLING

Attempts have been made to fit the punishment to the individual as well as to the crime. Minor crime groups, such as children and legally insane adults, have been handled differently from other criminals. There is a movement now to differentiate the form of the handling of psychopathic and psychoneurotic criminals. Proceeding slowly, progressive steps in the individual handling of criminals have met with the approval of the public, but the crucial test of individualization of treatment has not yet been made. Any movement such as this will succeed or fall on its own merit, depending upon whether or not individuals comprising a dynamic majority of the public begin to feel insecure as a result.

READING REFERENCES

Burt, C., *The Young Delinquent.* New York: Appleton-Century-Crofts, Inc., 1925.

Dollard, J., et al., *Frustration and Aggression.* New Haven: Yale University Press, 1939.

Glueck, S., and E. Glueck, *One Thousand Juvenile Delinquents.* Cambridge, Mass.: Harvard University Press, 1934.

Healy, W., et al., *Reconstructing Behavior in Youth.* New York: Alfred A. Knopf, Inc., 1929.

Reckless, W. C., *Criminal Behavior.* New York: McGraw-Hill Book Company, Inc., 1940.

83. EXAMINATION OF OFFENDERS

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When people live together conflict often results. One resolution of such conflict takes the form of crime, an admittedly undesirable form of behavior, and the problem is to minimize it. One aspect of this process is to apprehend and punish the offender. It is often difficult, however, to discover the one who actually committed the crime. The process of gathering evidence, checking alibis, examining and cross-examining witnesses, costs time and money. Hence, considerable interest is devoted to finding from the suspect himself whether he is guilty. If he confesses, the subsequent procedure is comparatively simple. If he is innocent, he may nevertheless give information that will help in apprehending the real offender.

PRESCIENTIFIC METHODS

ORDEAL

Primitive efforts toward this end deserve only passing mention. The suspect was subjected to an ordeal, for example, being thrown bound into a lake or being compelled to run through fire. In some mysterious fashion the ordeal was supposed to reveal the truth about his guilt or innocence. At any rate it often disposed of the suspect. Medieval torture elicited many confessions but it was difficult to tell which were true because the suspect under pressure was unduly suggestible.

PROLONGED EXAMINATION

The present counterpart of these primitive procedures involves prolonged examination under emotional tension and various devices to increase this strain, a method which is open to many objections. Fatigue heightens suggestibility, and when coupled with repeated assertion of the suspect's guilt, may produce untrue confessions.

PSYCHOLOGICAL TECHNIQUES FOR EXAMINATION OF SUSPECTS

Psychological techniques for the examination of criminal suspects are designed to avoid these difficulties. Several such techniques will be discussed seriatim. In actual practice they are not used discretely. For instance, several types of response, such as breathing, blood pressure, and electrodermal response, may be recorded simultaneously during an examination and the combined patterns analyzed to yield a diagnosis of guilt or innocence. Combinations of apparatus designed for such purposes are referred to in the popular press as "lie detectors." But this is as much of a misnomer as would be "appendicitis detector" or "tuberculosis detector." An examiner may use a number of devices for measuring psychophysiological activity and he concludes that the suspect is or is not telling the truth from an analysis of the records obtained with the apparatus.

The psychological techniques for examining a suspect fall into two classes: those which depend on some disturbance of a *voluntary* process, such as the association reaction, and those dependent on *involuntary* responses which take place during the examination, such as breathing and blood pressure changes.

ASSOCIATION REACTION TECHNIQUES

GENERAL PROCEDURE

Jung (1905) first exploited the association reaction as diagnostic of information which the suspect was trying to conceal. The method consists essentially of presenting stimulus words with instructions to respond with the first word that comes to mind and the time for the response is recorded. "Crucial" words pertaining to the crime are included along with "control" words and the differential analysis of the suspect's responses with reference to both the word itself and the reaction time may be indicative of guilt or innocence. The theory of the technique is that a stimulus word pertaining to the crime will produce a vivid association and the suspect is likely to make an incriminating response, inasmuch as he is set to respond quickly. Also, such a crucial word may produce an emotional disturbance which in turn may cause a "blocking" and hence slow the reaction time.

APPARATUS

Reaction time is measured by some type of chronoscope which operates by an electromagnetic clutch so that when a circuit is closed the hand of the chronoscope revolves in front of a dial and stops when the circuit is broken. For visual presentation of stimulus words, the exposure apparatus includes a shutter which drops and exposes the word and simultaneously makes an electric contact to start the chronoscope. If oral presentation is desired, the examiner speaks into a voice-key and a light diaphragm vibrates sufficiently to the sound-wave to break momentarily a delicately counterbalanced contact and start the chronoscope. The subject responds by speaking into another voice-key which stops the chronoscope, thus recording the time of the reaction on the dial of the chronoscope.

CRUCIAL WORDS

A difficulty encountered in the practical use of the association reaction technique lies in finding crucial words which actually are crucial, in the sense that they remind the guilty party of the crime, but do not carry that association for an innocent party. It is desirable to examine suspects before any details of the crime have been made public. For example, in a theft at a rooming-house, the money stolen had actually been concealed under a shirt. No one knew of this except the person who lost the money, the examiner, and the culprit. The word "shirt" was crucial. To innocent persons it suggested collar or necktie. The one who responded with the word "money" brought suspicion upon himself. If a case has already received publicity, it is only by going into smaller details that may have escaped the reporters that it is possible to obtain actual crucial words.

QUANTITATIVE CRITERIA OF GUILT

The criteria of guilt employed may be quantitative or qualitative. The former involves the actual reaction times as recorded by the chronoscope. The first step in analysis of responses is to compute the average time for the crucial words and the average time for the noncrucial words. If the crucial average is considerably greater than the noncrucial, guilt is suggested. Sometimes the suspect, realizing what is transpiring, will attempt to equalize his reaction times, slowing down on some of the noncrucial words to compensate for occasional blocks on the crucials. He is generally unable to do this uniformly and while he may get similar averages, there is greater variability in the crucial words arising from occasional emotional disturbances and a speeding up to compensate for a previous delay.

The variability is revealed by computing the standard deviation (σ) of each series of reaction times. If sigma is considerably greater for the crucial words than for the noncrucials, again suspicion of guilt is suggested. It is necessary, however, to go beyond the mere comparison of the two averages or the two sigmas because it is possible that the available data are not adequate samples of this particular behavior. The conventional check is to compute the standard deviation of the difference between the two averages (σ_D) and the critical ratio (D/σ_D). If the critical ratio is 3.0 or greater, the difference cannot be attributed to chance factors and is probably a true difference. The differences between sigmas may be evaluated in similar fashion.

QUALITATIVE CRITERIA OF GUILT

The qualitative criteria of guilt involve consideration of the actual words spoken by the suspect. In the instance mentioned above with the stimulus word "shirt," the response of "money" rather than of "collar" would appear suspicious. Sometimes stereotyped responses to a given word are found, i.e., the suspect may respond with the word "house" to a dozen different stimuli where "house" is not a plausible association. This suggests that thinking became blocked and a previous response was repeated.

LURIA TECHNIQUE

Mention should be made of a supplementary device which may be used with the conventional association reaction technique. It was first used by Luria (1929). The suspect has the fingers of his preferred hand resting on a pneumatic bulb or tambour-like key. As he operates the key, the changes of pressure in the pneumatic system are transmitted through a tube to a recording tambour on a polygraph. In the more recent devices metal bellows are substituted for the rubber tambours. These bellows are an inch or more in diameter and contain from five to twelve sections made of very thin metal which is flexible enough so that depression of the bellows will change the pressure in the system, and conversely, changes of pressure in the system will make the bellows on the recording end expand and contract. When the suspect presses his bellows the recording bellows moves a lever carrying a barographic pen which records on the polygraph.

In Luria's procedure the suspect's fingers are clamped to the pneumatic key and he is instructed to press the key synchronously with his verbal response to the stimulus word. The pressure of the fingers is recorded continuously. The other hand rests on a similar key with instructions to hold it stationary, and pressure is likewise recorded continuously. It is necessary to show on the polygraph record of finger pressures the exact moment when the stimulus is given and the subject's verbal response made. This is done by tapping the circuits through the chronoscope and voice-keys so that a signal magnet makes an indentation on a line when the stimulus is given and the pen moves back to its initial position when the suspect gives his verbal response.

Luria was concerned primarily with a qualitative inspection of the response pattern. A double response with the hand frequently accompanies crucial or incriminating stimulus words. Shortly after the stimulus word is given the suspect makes a slight response with the finger, then comes back to normal, and then makes a second more pronounced finger response simultaneously with his verbal response. Presumably he thinks of an incriminating verbal response, suppresses it, and then gives a secondary response which is not incriminating. However, being set for pressing the key he is able to inhibit the verbal response, but not completely inhibit the corresponding manual response.

Luria found this double manual response quite diagnostic in some serious criminal cases, including murders. In less serious crimes it is necessary to make a detailed analysis of an individual polygraph record, which usually shows that the majority of the manual response patterns are of a given type (Burtt, 1936). One individual may push the key down and hold it for an instant before bringing it up; another person pushes it down and returns it almost immediately. The individual pattern that is most predominant is noted, and then the patterns that differ markedly from this typical one. If many more atypical patterns occur on the crucial words than on the non-crucial words guilt may be indicated.

RESULTS WITH THE ASSOCIATION REACTION TECHNIQUE

The association reaction technique has been used extensively in laboratory studies under somewhat artificial conditions and in many instances with actual suspects. A few of these latter have been reported in the literature, but the writer knows from contact with other psychologists that many unreported instances of this sort have occurred. Crossland (1929) handled a number of cases of theft in university fraternity houses—86 per cent of them successfully. Luria reports the use of his technique with criminals, including many murderers, with satisfactory results. Those who examine offenders in connection with police procedure have not used the technique so extensively but have confined themselves to the records of breathing and blood pressure secured while questions are being asked.

BREATHING

INSPIRATION-EXPIRATION RATIO

Breathing was investigated long ago as an indicator of emotional behavior. The early work on rate and depth of breathing did not yield clear-cut results. Benussi (1914), however, hit upon the possibility of the inspiration-expiration ratio (I/E), that is, the number of seconds during inhaling divided by the number during exhaling for the same breath, as an indicator of guilt or innocence. He may have taken his cue from the gasp-of-surprise which produces a small inspiration-expiration ratio.

BENUSSI'S PROCEDURE

The technique for recording breathing employs a pneumograph about the chest of the suspect. This is a large rubber tube with a light spiral spring inside to keep it from collapsing. The arrangement is airtight. A nipple on one end is connected through a rubber tube to a tambour or metal bellows recording on the polygraph.

Benussi instructed the suspect to remain silent after the question was asked and to think about his answer until given a signal to reply. Then he computed the I/E ratio for several breaths preceding and following the answer to a question. The ratio was found to be greater before the response than after in the case of the truthful responses, and to be smaller in the case of false responses. Apparently an emotional condition while waiting to answer and a subsequent change after the answer has been given produce a difference in the breathing. The actual physiological basis has never been clearly explained.

Benussi's work has been repeated in this country (Burtt, 1921). The results although not nearly as striking as those reported by Benussi, have been encouraging. Detailed mathematical analysis makes it possible in about 70 per cent of the cases to judge correctly regarding truth or falsehood for the series of questions dealing with a particular "crime." But quantitative analysis such as this is time-consuming.

BRIEFER ANALYSIS OF BREATHING

When used in examination of suspects the breathing record often is merely inspected for irregularities during crucial or incriminating questions in comparison with control questions. A certain amount of accuracy may be lost, but in many instances the mere qualitative analysis appears adequate. Irregularities in breathing or an apparent suppression of the breathing is important if corroborated by other measures in the polygraph record.

BLOOD PRESSURE

TECHNIQUE FOR DISCONTINUOUS RECORD

Blood pressure is another bodily accompaniment of emotions that has been exploited in connection with crime detection. Münsterberg suggested as early as 1892 that blood pressure might serve as an index of feelings and might possibly have some relation to criminal problems. Not until 1917, however, was the matter investigated experimentally (Marston). "Suspects" were questioned about artificial crimes so arranged that some of the time they told the truth and some of the time they lied. The blood pressure was noted every minute or two by means of a standard sphygmomanometer. Marston reported considerable success in distinguishing between truth and falsehood by changes in blood pressure.

In this technique, a rubber sleeve, which is wrapped around the arm above the elbow, is inflated until circulation in the lower arm is stopped. Then a valve is opened to produce a slow leak in the sleeve, thus reducing the pressure gradually until the blood circulates in the forearm. The first pulse beats are noted by means of a stethoscope placed just below the elbow at the bifurcation of the artery or by feeling the pulse at the wrist. At that moment the examiner reads a manometer which indicates the pressure in the sleeve.

INTERPRETATION OF DISCONTINUOUS RECORD

This technique proved reasonably successful in early experiments. The systolic pressure (the pressure when the valves of the heart are open) was found to be more diagnostic than the diastolic pressure (the pressure in the opposite phase). The former depends more on the functioning of the heart muscle, which in turn is influenced by its nervous supply, whereas the latter is influenced more by the actual condition of the arteries. It was necessary to make allowance when telling the truth for unusually high blood pressure, which was due to excitement caused by the experimental situation. This was done by including questions of unexciting character on which it was practically certain that the person was telling the truth. The pressure under those conditions reflected the individual's normal blood pressure plus the effect of excitement due to the examination. This pressure was taken as a base and deviations from this base on the crucial questions were noted. In certain early experiments by this technique correct diagnosis was made about 90 per cent of the time.

It soon became apparent that with this technique a good deal was lost between the blood pressure readings, since it is not possible to take a reading more than once a minute without considerable discomfort. A suspect might tell a lie between readings and recover from the excitement by the time the next reading was taken. So techniques were developed whereby a continuous record could be obtained, not of systolic blood pressure but some function of it.

TECHNIQUE FOR CONTINUOUS RECORD

To secure a continuous record the usual sleeve is placed around the upper arm but it is not inflated enough to stop the circulation—between 30 and 50 millimeters. A rubber capsule attached to this sleeve steps down the pressure so that it operates a tambour recording on a polygraph. This technique was employed by Larson (1923, 1932), but present techniques employ metal bellows in the place of the capsule and tambour. It is possible to get a bellows which is fairly rugged and can operate directly at the pressure in the rubber sleeve. In the use of this type of bellows it may be necessary, however, to run up the pressure as high as 80 millimeters, which soon becomes uncomfortable. Sometimes the sleeve is attached to the leg rather than to the arm so that the onset of discomfort is less rapid. A development to overcome the need for increased pressure in the sleeve involves a light bellows inside a small chamber. The bellows is at the pressure of the sleeve and so is the surrounding air in the small chamber. The bellows thus is kept in its normal position and is much more sensitive than when extended. Slight changes of pressure in the sleeve change the length of the bellows. By throwing a valve the chamber can be cut off from the rest of the system so that it is not affected appreciably by changes in the bellows-sleeve system but merely serves to keep the bellows sensitive. The motion from the bellows is transmitted outside the chamber by warping a thin steel diaphragm which is strong enough to withstand the inside pressure but

responds to a slight twist given it by a lever that extends out from the bellows, using the diaphragm as a fulcrum. This lever can then record on a polygraph with a light pen of the barographic type. The curve on the polygraph record indicates each pulse beat, rises as the blood pressure increases, and falls as the pressure decreases, but it is not possible to determine the absolute pressure (see Figure 1).

PRECAUTIONS IN EXAMINATION

A number of precautions must be observed in conducting an examination with this technique. If the subject actually is afraid of the examiner, an irrelevant and misleading response may be obtained. Questions preferably should be phrased so that they can be answered categorically because vocal effort complicates breathing and indirectly the blood pressure. Undue suggestion should be avoided. The examiner should not insist that the suspect is guilty; he should merely ask straightforward questions. An inexperienced or unscrupulous examiner employing this technique is likely to use it as a sort of "psychological third degree" and try from the start to secure a confession. Such persons should not use the technique anyway. Sometimes, to be sure, the impressiveness of the situation and the belief that the apparatus is quite diagnostic may lead a suspect to confess, but this should not be the immediate goal. If a record looks suspicious, it is possible to point that out to the suspect and ask him if he has any explanation. Under these circumstances he may realize that he has been detected and confess, but the initial object should always be the determination of the facts. This is accomplished by boxing the suspect in with questions so that if he is actually guilty he will get into an attitude of frustration or tension.

INTERPRETATION OF THE CONTINUOUS RECORD

Interpreting the record requires considerable care. It is clear that an innocent person might be so excited by the examination that his blood pressure rises on being questioned. Due allowance must be made by using the individual as his own control. Certain questions are introduced to which truthful replies are inevitable. Part of these should pertain to the crime but deal with matters of common information upon which the suspect would tell the truth. The general trend of blood pressure on such questions can then be noted. Usually there is a slight rise after each answer, followed by a return to the initial level in a few seconds. If, however, the curve stays up longer or goes up higher than usual, suspicion is aroused.

The examiner must also take account of the fact that the breathing may influence the blood pressure. For instance, if one holds his breath, definite changes in blood pressure are produced. That is one reason

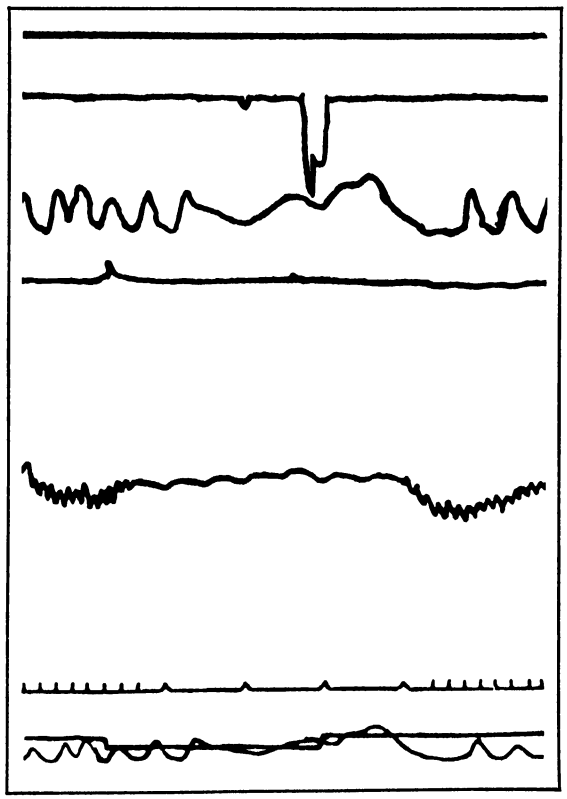


Figure 1 (XIII-83).—*Record of a Suspect*

Early portions of record at left; later at right. The various lines, reading down, are as follows: (1) signal line operated mechanically by push button—not used in this excerpt; (2) manual response with preferred hand (Luria technique), showing a premature response prior to the main one; (3) abdominal breathing; (4) manual response with nonpreferred hand; (5) blood pressure; (6) time line, one mark per second; (7-8) thoracic breathing, with reaction time line superimposed—drop in line when stimulus was given and back to normal with verbal response. The polygraph was speeded up during a portion of the record.

why talking should be kept at a minimum. Sometimes there is a suppression of breathing, which shows clearly in the breathing record but also produces changes in blood pressure. The interpretation of a record is an expert's job. Frequently there is no clear-cut indication of truth or falsehood. The examiner should be conservative in his interpretation, and in doubtful cases give the suspect the benefit of

the doubt. For verification of suspicion with reference to a particular question, however, it is possible to repeat that question later or to introduce other questions along the same line to see if blood pressure rises in that context.

TYPICAL RESULTS

Two cases described by Larson (1932) may be presented. A burglar suspect was questioned but denied all connection with the crime and gave such a straightforward account that he would normally have been released. The graphic record suggested, however, that he was falsifying so he was released but shadowed, and the stolen property was found. In another instance, a friend of the family came in to discuss with the police the theft of a small sum of money. He was willing to have the apparatus attached to him while giving his testimony. His record looked suspicious when he was asked if he had taken the money. It looked similarly suspicious when he was asked whether he had ever been arrested and said, "No." The files revealed that this reply was false. This directed suspicion toward the probable lie on the other question. It ultimately developed that he had taken the money himself. These cases are typical of many clarified in the preliminary examination conducted by the police. Other cases are described by Inbau (1942). In a summary of one sample of 528 suspects Larson (1932) reports that 310 were cleared, 53 confessed, 129 lied and later confessed, and 36 lied with the diagnosis subsequently corroborated by the evidence. One crime detection laboratory reporting on 2000 cases over a three-year period states that only 12 mistakes actually were verified (Trovillo, 1939).

ELECTRODERMAL RESPONSE

One other technique for the examination of suspects will be mentioned although its practical value has not as yet been widely accepted. It consists of connecting electrodes at two points on the bodily surface, sending an extremely weak and imperceptible electric current through the individual, and by an appropriate circuit connecting with a galvanometer which deflects as minute changes in bodily resistance occur. The apparatus is rather difficult to keep in adjustment but the circuit can be balanced so that deflections within the scale of the galvanometer will be obtained as a person responds to various emotional stimuli. A beam of light reflected from the mirror of the galvanometer can be photographed in motion or an electrically recording galvanometer can be arranged. A few investigators feel that this electrodermal technique is very satisfactory. But the consensus at the present time is in favor of the other techniques. Darrow (1929) suggested that the electrical resistance is more responsive to emotional stimuli of a sensory character, such as being startled by a sound, whereas the blood pressure is more responsive to stimuli involving association, i.e., some intellectual aspect, such as deception. Further experimental work will be necessary to indicate whether the electrical response technique can be an effective supplement to the others. It appears to be more diagnostic in the experimental laboratory than under actual police conditions.

FUTURE TRENDS

Future developments are to be expected along the line of research with other techniques. Eye movements have been investigated in a preliminary way. One experimenter had the suspect tap automatically in time with a metronome throughout the examination and the movement of the fingers was recorded by a device somewhat like that used in the Luria method. There is room for improvement in the blood-pressure recording devices to make them more sensitive. Lighter weight portable units are desirable.

ETHICS

Several of the techniques described above and particularly the blood-pressure procedures are in routine use in a number of places. A few laboratories connected with educational institutions are equipped for examination of deception. A few other agencies with expert personnel are engaging in this type of work. Psychologists sometimes do it on a consulting basis. The point cannot be stressed too much that such procedures should always be handled by scientifically trained experts. It is unethical to provide nonprofessional persons with the apparatus.

CURRENT USEFULNESS

Numerous cases in recent years have been handled similarly to those cited above. Valuable information has been obtained in cases ranging from murder to petty larceny. Banking concerns have used these techniques as part of their employment procedure, questioning the applicants regarding previous financial delinquencies. Contrary to what might be supposed, an applicant who admits a previous delinquency, with corroboration in the record, may stand a better chance of employment than one who denies

any previous delinquency but has a record that looks suspicious.

LEGAL STATUS

The future legal status of the techniques is difficult to predict. It is doubtful if they will play any great role in the "battle of experts" in court. There have been a very few instances where expert testimony along these lines has been admitted as evidence but in most cases the court has denied it on the basis of a 1923 precedent. It is to be hoped that the scientist's opportunity to contribute evidence will be in the form of impartial examination agreed to by counsel for both sides and with the question of admissibility waived. This had already been done in at least one case. However, the main contribution of these methods will probably always lie in the preliminary examination of suspects. In the hands of experts who are properly trained, they are making and will continue to make distinct contributions to the problems of crime detection.

READING REFERENCES

Inbau, Fred E., *Lie Detection and Criminal Interrogation.* Baltimore: The Williams & Wilkins Company, 1942.

Larson, J. A., *Lying and Its Detection.* Chicago: University of Chicago Press, 1932.

84. THE COURTS

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Courts in the United States are divided into two groups: civil and criminal. Civil courts have to do with disputes between individuals, and exist for the purpose of solving interpersonal problems which are not essentially damaging to society. Criminal courts have jurisdiction over a person who has committed an offense against society and dealt with under the criminal law, which may be against property or other individuals and, in the case of attempted suicide, against the offender himself.

How much service the psychologist can be to any court is determined by the experience of that court with psychological services as well as by the personality and ability of the psychologist available to work with the court. The court in some communities finds but little use for psychologists, not because they are not needed, but because the court has not been educated to take advantage of their services. The services which have been rendered by psychologists differ in the various courts throughout the country.

THE COURT PSYCHOLOGIST

A court psychologist is a psychologist trained in clinical psychological technique whose primary concern is with the administration of justice. Court psychologists are either consultants who are brought in from time to time by the judge in order to clarify a psychological point at issue or they may be members of a court clinic. Court clinics are organizations of specialists in human-behavior analysis attached to criminal and juvenile courts for examination and recommendation of therapy for use by the court in sentencing.

LEGAL STATUS

Psychologists are brought into court as experts either to advise the judge or to testify on one or the other side of a civil or criminal suit. The opinions of psychologists, like those of other experts, are accepted or rejected according to the attitude of the judge and the jury and the ability of the lawyer to integrate this testimony with other evidence. When permitted to give expert testimony they must qualify as having better than casual knowledge of the subject of psychology. The qualifications of a psychologist are established in court by referring (under guidance of the counsel who directs the court hearing) to his findings in similar cases previously examined. Because of the fact that only one trial out of many

thousands is appealed to a court where a formal record is kept, much of the testimony of psychologists, and the rulings of the court pro and con anent the testimony of psychologists, are not available to be cited for future use. The value of psychological testimony in jury cases is limited to the favorable impression the psychologist can make upon the jury through integrity, skill, experience, and soundness of judgment. Psychological testimony is limited by all of the usual rules affecting testimony.

CIVIL COURTS

The possible contribution of psychologists to the adjudicating of human disagreements in civil courts is almost unlimited. But the actual use of psychological services in these courts has been restricted by a lack of recognition of their potential value on the part of lawyers and judges. It is evident that if an individual's mental age is below a certain level, he should not be allowed to take care of his own property even if he has not been institutionalized in a school for defective children. In civil court cases dealing with such matters, the opinion of the psychologist is of great importance. He may testify concerning the results of intelligence tests given to a child who becomes of age and has been considered feebleminded during his infancy (infancy in the legal sense applies to all individuals under the age of twenty one). He may testify whether a guardian should be appointed for an incompetent person whose incompetence is due to feeblemindedness.

NONCOURT AGENCIES

The use of outside psychological agencies in the civil courts which have to do with the placement of children is becoming more and more prevalent. Often a psychologist's advice is requested when a child is changed from one institution to another. Frequently the psychologist is employed by an orphanage to testify in court upon foster-home placement or for commitment to a school for the feebleminded.

The rules of evidence are carefully followed in most courts of equity only if there is contention of the case. These courts dispense a high degree of justice through their informal hearings. Because of the informality it is easier for the judge to determine the truth of matters. He can question in any way he wants, accept hearsay evidence which is usually barred in the formal court hearing, evaluate letters and other documents which would not be accepted as evidence in formal law trials because the writers could not be subpoenaed to verify the fact that these letters were actually written by themselves. The psychologist's testimony fits into this informal atmosphere, where evidence of degrees of intelligence or levels of development can be explained as a basis for judgment upon the disposition of the case.

SUMMARY

The work of the psychologists in the civil courts is carried on largely by agencies which are not directly connected with the court and by psychologists who are called in to testify on specific cases. The opinion of psychologists has seldom been asked in evaluating many civil problems which confront the judge, such as the mental capacity of testators or those entering into contracts. But his opinion is sought widely by courts in matters concerned with the mental development of children before the court for disposition.

CRIMINAL COURTS

The major service of psychologists to criminal courts is rendered through organized court clinics. Psychologists work on criminal court cases in cooperation with psychiatrists, physicians and other specialists of the clinic staff to secure a thorough examination and evaluation of the subject of a case. These clinics are directed by psychiatrists who frequently are psychologically trained. Where clinics are not established in criminal courts the judges of the courts may call in local psychologists or other specialists who can advise in reference to a particular case.

Adult criminal court clinics are highly developed in New York, Chicago, Detroit, Cleveland and Pittsburg. The clinics are organized as single units in the probation department or separately under their own directors. Even when set up in the probation department their function is distinct from probation work, although probation officers provide the clinics with case history material. In other criminal courts where clinics do not exist, particularly the Municipal Court of Philadelphia and the Supreme Bench of Baltimore, a psychologist aids the psychiatrist who is the medical officer.

Psychologists in criminal court clinics may be asked to advise the judge on the disposition of a case and to advise probation officers on how to get material services for their probationer. They may be asked how to evaluate the information that the probation officer has secured about an offender through home visit or office interview and how this officer's report may be presented to the judge to offer an understandable picture of the psychological problems involved. Police officers, law enforcement officers,

such as sheriffs and constables, and prosecuting attorneys frequently request the court psychologist's assistance to obtain special information about the subject of a case. They take advantage of general policies concerning procedures to get offenders examined in order to carry out to advantage the supervision for which their agencies are responsible.

PSYCHOLOGICAL TESTIMONY

The testimony of the psychologist in criminal courts, as previously indicated, has no status except insofar as he qualifies as an expert on the basis of his own training. The following legal case illustrates this.

In the case of People vs. Hawthorne 293 Mich. 15, Hawthorne's counsel claimed he was insane at the time he committed his crime, the murder of his wife and a man friend. For the State, two psychiatrists testified that Hawthorne was not technically insane, that he was able to know the difference between right and wrong at the time of committing his crime and that he was able to recognize the nature and quality of his act. According to these two definitions which are the legal definitions of insanity—medicine has no definition—Hawthorne was not insane. For the defense, a psychiatrist testified that the man was mentally sick, but he could not conscientiously say that the legal definition was not complied with, so he had to say that Hawthorne was sane. A psychologist was put on the stand by the defense. This psychologist was a professor in a State Teacher's College and had known Hawthorne for several years while he was a student at that institution. The defense contended that this psychologist should be permitted to testify as an expert on insanity regardless of the fact that he was not a medical doctor. Judge George Murphy of the Recorder's Court ruled that he was not so qualified but that he could testify as an expert regarding his own observation of the man. The Supreme Court of Michigan upheld Judge Murphy's decision, although one group of judges added to the decision the comment that it was up to the judge to determine, as he had correctly done, the competence of the expert and urged that the absence of the medical degree not be overstressed in receiving expert testimony from a psychologist if otherwise qualified.

SUMMARY

A growing demand is evident for the work of court psychologists. There are court clinics in most of the large cities, and in those in Pittsburgh and Detroit particularly the services of psychologists are in great demand. Judges and court attaches, including the probation officers, are coming to understand the use of psychological service in court procedure. It is to be expected that more of this work will be performed in the future where court clinics have already been established and in communities without the service of an organized clinic.

JUVENILE COURTS

The most active contribution of psychology to court procedure is in the Juvenile Court. Juvenile courts are purposely set up as civil courts, but they partake also of the functions of criminal courts when damage is done to property and to persons by the juvenile. They aid parents in the proper care of their children and serve in the administration of estates for minors. They act as criminal courts only when the problem presented by the juvenile is one of misconduct in which the law is violated. Such courts may, in their quasicriminal capacity, sentence juvenile offenders to corrective schools in the same way that the criminal courts sentence adult offenders to prison.

JUVENILE COURT CLINICS

The juvenile court clinic is similar to the adult criminal court clinic in its purpose of advising the court on how to sentence, but its point of view in examination and therapy is different. The juvenile offender is a problem child. Since problem children are the children of problem parents it is necessary to interview the parents and if possible a teacher or social worker who is informed of the child's background. The history is taken from these adults rather than from the child offender. Whereas in the adult court clinic the offender's history is checked with the psychological attitudes of outside informants, in juvenile court clinics the informant's attitude is checked against the child's behavior. Even if the child is defective he indicates in his behavior his attitude toward his parents. From this information the parent's attitude towards him may be examined.

ORGANIZATION

The psychologist's responsibility in the juvenile court clinic will vary with its organization. Purely advisory clinics to the Juvenile Court often are headed by psychologists. Those invested with legal authority are headed by a psychiatrist because of laws requiring the signature of a medical doctor in commitments. This is the organization of the New York Juvenile Court and the Cook County Juvenile Court in Chicago. In this more usual organization the psychologist serves as a staff member contributing to the

whole unit composed of psychiatrists, psychologists and social workers. His work is similar to that in the adult criminal court clinic. But often in the juvenile court clinic the psychological examination and history taken by the social worker, is sufficient to make an evaluation of the case and recommendation of therapy. Under these circumstances the psychiatrist has little to do except in deciding whether the child is abnormal or insane. In other circumstances the psychologist serves as a technician administering routine tests to be evaluated by the psychiatrist. The responsibility given the psychologist in juvenile court clinics depends largely upon his training.

PSYCHOLOGICAL EXAMINATION

Psychological testing in juvenile court clinics is much more extensive than in adult criminal court clinics. The child faces a period of development through formal schooling or special training. Intelligence tests are useful for predicting this development and in determining his educability. Achievement tests determine the impression his past schooling has made on him. Often discrepancies between intelligence and achievement tests are significant in making recommendations as to school progress. These will distinguish the dull child who has been overeducated or the bright child whose emotional approach is wrong and is retarded in school grade.

Because so many children have reading and speech problems, special analyses of these functions are made in juvenile court clinics by extensive batteries of standard tests. Because, too, the child is still malleable and has certain aptitudes and possibilities, it is not uncommon in juvenile court to give a battery of tests to determine vocational placement with regard not only to the relationship of intelligence to work capacity, but also to find specific trade aptitudes and interests which can be developed along the lines of jobs which actually exist in industry.

THERAPY

Particularly significant in the psychological therapy of juvenile court clinics is the coordinating, planning and systematizing of the curriculum in the schools for the child who has not achieved as much as his intelligence would justify. Extensive reading therapy often is recommended. If there is not a speech clinic in the community, speech therapy may be given in the court clinic. Working jointly with a social worker the psychologist may attempt to adjust the child environmentally and emotionally, but usually such therapy is carried by the social worker or probation officer under the direction of the psychiatrist. The psychiatrist handles any psychiatric treatment either of the child or the parent who may require it.

VARIED RESPONSIBILITIES

The juvenile court psychologist often assists the social worker in his responsibility for supervision of the foster home placement made by the juvenile court. He checks the results of therapy in these homes in terms of school achievement and improved reaction to various tests of general capacity. He serves on commissions to determine whether a subject who is presented for commitment to an institution for the feebleminded has, by actual test, a sufficiently low intelligence to permit sending him to such an institution. He is called in by the judge to advise regarding specific handling of a case in court based on psychological findings, that is, whether the child should be severely lectured or shown sympathy and leniency, and so on.

SUMMARY

The psychologist of the juvenile court has many more fields of usefulness than is offered in the usual adult criminal court. Because of the many useful educational techniques in the court psychologist's armamentarium, application of therapy to the juvenile is much more practical than to the adult criminal who has passed the stage where the improvement of difficulties in reading, academic subjects, citizenship and so on are a solution for the behavior problems. Psychological examination and therapy form a large share of the work of the juvenile court clinic and when supplemented with medical consultation and social work, the recommendation offered the court of the subject of a case is exceedingly valuable from the point of view of readjustment in social living.

COURT CLINIC

The Recorder's Court Clinic in Detroit, Michigan, illustrates the organization of a court clinic primarily for psychological service. One director of this clinic was both a psychologist and psychiatrist, and was both a doctor of medicine and a doctor of philosophy, which is more advantageous than the usual situation when the director is a psychiatrist and a doctor of medicine only. More extensive use is made of psychology and psychologists than is usual elsewhere. In contrast, procedure in the New York General Sessions' Court Clinic is such that only those cases are referred to the psychologist which require an intelligence test of the subject. Psychological therapy generally is neg-

lected for medical and psychiatric therapy. In the Detroit court clinic, psychological practice engages perhaps 10 units of time of the subject against one for psychiatric service, which is appropriate for most legal cases.

REQUIREMENTS FOR PSYCHOLOGISTS

The standards of employment for psychologists in the Recorder's Court Clinic of Detroit are a doctor's degree in psychology, with varied amounts of experience in psychological practice. Added to this must be personal qualifications of adaptability to clinical psychological work with court cases.

FUNCTION OF CLINIC

Subjects of legal cases who are examined by the psychiatrist in the Detroit clinic are referred to the clinic by the court for one of the reasons given below. These subjects are adult offenders of either sex.

1. They may have been convicted and are referred for investigation of criminal background, attitude, and interests. Here, the clinic acts as a substitute for a lengthy interrogation that originally would be carried on by the judge to determine what the sentence should be. The psychologist and social worker are primarily concerned in clinic handling of such subjects.

2. They are referred during trial because of suspicion of insanity. Although the psychologist makes a thorough preliminary investigation of these subjects, the final decision of sanity rests with the psychiatrist.

3. They are referred by the State Hospital Commission under an unusual Michigan Statute which provides that every individual who has been arraigned for first degree murder must have an examination as to his sanity before being brought to trial. The purpose of this law, like that of the Briggs Law of Massachusetts, is to prevent an insanity plea later in order to get an acquittal when there was no insanity at the time of the crime. Here the psychiatrist makes the examination and diagnosis.

4. They are referred by the Police Department where police officers, particularly in the Women's Police Division where sex offenses and crimes commited against women and children are investigated, consider that more harm would be done either to the complaining witness or to the defendant if the case was brought to trial. These are regarded as court cases even though not referred by the judge. The purpose of the examination and therapy of subjects in these cases is prevention rather than palliation.

Some of the subjects referred to in the above categories are out of jail on bond; some are free in the community on their own responsibility and their promise that they will appear in the clinic at the time of the examination. Others are held in the local jail or are brought from the county jail to the clinic for examination.

THE SUBJECT'S HISTORY

As soon as the subject of a case is brought to the clinic an extensive history is taken. This is usually performed by the psychologist. Originally the method of taking the history followed the inclination of the examining psychologist, but now a standardized guide for interviewing devised for the clinic serves a practical service. This is partly self-administering; the subject fills it out and his answers are checked during the interview.

CHILDHOOD RECORD. The first part of the form contains questions of family history to determine whether the parents had ever been in an institution or had any sicknesses or maladjustment which might have influenced their ability to care for the offender. The school record is investigated; also the childhood background generally. The interviewer is interested in such matters as sibling rivalry, attitudes toward poor supervision and poor discipline in his home, attitudes toward his parents particularly when a child and any evidence of over- or under-protection. These, taken with the congenital factors, may bear upon antagonism toward family and family discipline first, and second, toward social control of the community. Abnormal attitudes are developed often due to bad home supervision.

WORK RECORD. The economic circumstances of the family are investigated in taking the history. Just as important as family wealth is the subject's work record and the record of his financial behavior. These are investigated back to the beginning of the employment career to determine stability of employment. The interviewer is interested in knowing whether the subject has been able to hold a job for a long period of time and has given satisfaction to his employers; whether he has had conflicts with other workmen; whether he has or has not simple skills which can be tested later.

CRIMINAL RECORD. Periods spent in corrective institutions are detected in the work record. If there are long gaps in the work record the interviewer suspects that time has been spent in corrective institutions

even though the formal corrective record received from the Federal Bureau of Investigation Fingerprint Bureau does not reveal them. All cases are cleared through the local police record bureau. Gaps in the corrective record exist because of the failure of local police departments and sheriffs to report fingerprints or the records of particular crimes and especially of negligent homicide in an automobile accident. The interviewer secures information of offenses omitted from the official record; he checks on the formal record, finds out the nature of the known crimes and the psychological features involved in them so that these crimes can be evaluated in terms of the present offense. He evaluates this record, determining whether the subject is a recidivistic or chronic offender and whether he is "institutionalized," meaning that life is more pleasant to him behind prison bars than outside because he has formed comfortable habits of adjustment in the simple and protected environment of the prison.

HEALTH RECORD. The subjects of many court cases have a history of encephalitis, poliomyelitis (although the significance of this disease is not great), and children's diseases in which there has been a brain abscess or other organic deterioration of the brain. As his life has progressed bodily disorders may have affected or have changed his outlook toward life. These are disclosed in the health record.

The psychologist makes use of the history interview to secure a picture of attitudes characteristic of the subject through skillful questioning and observation of behavior. This material is assembled with the results of the psychological examination in such fashion as to enable the psychiatrist to comprehend more easily the general makeup of the subject of a court case in proceeding with medical and psychiatric diagnosis for legal purposes.

PSYCHOLOGICAL EXAMINATION

The psychologist administers such intelligence and other tests as are indicated as desirable by the history of the subject of a case in his care. Intelligence testing in the adult criminal clinic is a difficult problem. Pencil and paper group tests, such as the Otis Self-Administering Tests of Mental Ability, and individual examinations, such as the Revised Stanford-Binet Intelligence Scale, are most useful in determining levels of intelligence among criminal adults. Many of the performances demanded in the Pintner-Paterson Performance Test or tests involving completion of pictures or blocks and form boards are thought to be childish by the adult offender.

A certain amount of resentment is set up in adult subjects toward intelligence testing. But both the psychologist and psychiatrist consider this specific evaluation important in determining the mental level in which the man is operating. He may be deteriorated or be psychotic (insane) so that the test if indicating feeblemindedness leads to inaccurate conclusions. Nevertheless, the subject behaves in the way one would expect an individual who has the intelligence rating that he has achieved. The general rule in the Detroit Clinic is for an I.Q. below 70 (which is the arbitrary borderline in most clinics between feeblemindedness and dullness) secured with a group test to be rechecked with an individual test. Psychologists of the Detroit Clinic prefer individual tests to group tests because they are able to observe better the subject's work and thought habits, speed of decision and judgment, and other psychological traits which might not be so clearly illuminated during the taking of the subject's history.

Because many of the individual tests of intelligence are particularly adapted to children, upon whom the tests were standardized, adult court psychologists are in need of an adult individual intelligence test. The Wechsler-Bellevue Intelligence Test, consisting of verbal and nonverbal tests, has been suggested for this purpose but unfortunately the I.Q.'s of this test do not check with those of other intelligence tests, probably because of its adjustment to deterioration for increasing years, and with the psychological picture from the subject's history. This has occasioned the recommendation above of intelligence tests for adult criminal offenders.

THE TRAFFIC CLINIC

The Detroit Recorder's Court Clinic has a special traffic division for the examination of traffic offenders. The same methods for psychological examination of the subject of court cases are applied generally in the study of traffic offenders. In addition tests pertaining to driving skill are used. Selling and Canty (1937) have devised new psychophysical tests and modified old ones, such as Troland's test of speed and distance, the Army rod test, reaction time tests like those of Lauer and DeSylva, which are used for this purpose. Selling (1937) indicated that attitude is the most important factor in safe driving, which is considered in the examination of traffic offenders. The offender's judgment of speed and distance, his depth perception, his sensitivity to glare and reaction time are all tested. Color blindness is only of importantce in very defective individuals. This defect is noted along with

those of visual acuity, although acuity is of less importance than usually thought by traffic experts. Perimetric vision is tested for extent of side view of objects. This ability is seldom defective, but when it exists it is an important cause of bad driving at street intersections.

THERAPEUTIC PROCEDURES

Most therapy carried out at the behest of the Detroit court clinic is not performed directly by it. This therapy consists often of probation or a sentence to institutions. Nevertheless, the clinic staff often guides the probation officer, by means of the evaluations of the offender's conduct, and aids the judge in determining the sentence that should produce therapeutic results.

In addition to this rather generalized type of therapy, the subjects of court cases with abnormal attitudes, bad habits, bad interests, familiar maladjustment are returned to the psychologist who advises him, aiding him in getting a job or in making a difficult home and work adjustment. Also, the psychologist may interview or control other people who are responsible for the subject's conflicts and problems. This form of therapy is often of great value for a selected group of offenders. It is independent of psychiatric treatment which may be continued for the subject of a court case by the psychiatrist under similar circumstances.

FUTURE TREND

This brief résumé may have indicated the potentialities which exist for the psychologist in raising judicial processes to a plane in which they improve the social adjustments of criminal or delinquent. The application of psychological service to the various aspects of court work is hampered at present by the lack of adequate psychological personnel, financial resources and recognition by judges and lawyers of its value. We might in the future expect to have psychological testing of all jurors to see if they are able to carry on their jury duties in a competent fashion. Jurors might be given intelligence tests, tests of general knowledge and attitude inventories before being accepted on a case to see whether their ability and sphere of interest were such that they could render justice. This and similarly practical means of extending justice could be contributed by psychologists to court procedure. Witnesses might well be examined to determine their suggestibility and their intelligence and the court could be apprised of any factors detected in the examinations which would imply skepticism of the witnesses' testimony. These examples suggest new legitimate spheres of work for court psychologists. More are evident, although psychologists now render many useful services to the courts.

READING REFERENCES

Selling, L. S., *Diagnostic Criminology.* Ann Arbor: Edwards Bros., Inc., 1935.

———, "Investigation Methods in Clinical Criminology." *Journal of Criminal Psychopathy,* 1940, **2,** 80–88.

———, "Notes on the Psychopathic Clinic of the Recorder's Court." *American Journal of Orthopsychiatry,* 1937, **7,** 429–433.

———, "The Psychological Approach to the Traffic Problem." *Scientific Monthly,* New York, 1937, **44,** 547–554.

———, "Standards of Training and Experience in Terms of Job Specifications as a Basis of Certification." *Journal of Consulting Psychology,* 1941, **5,** 66–69.

85. SCHOOLS FOR DELINQUENTS

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Training schools for delinquents are communities consisting of from one to eight hundred children whose ages range from eight to eighteen years. The training program includes: (1) academic studies corresponding to the prevailing state curricula through the tenth to twelfth grades; (2) vocational training which ranges in quality from unsystematic labor in the maintenance of the plant and in the gardens and fields to well-organized instruction under vocational school teachers in practical skills, such as agriculture, dairying, laundry work, tailoring, shoe repairing, automobile repairing, barbering, cooking, housework and homemaking, sewing, and beauty culture; (3) a special community life designed to eliminate delinquent behavior and to inculcate socially desirable habits, attitudes, value concepts, and goals of aspiration.

Very few of the two hundred training schools in America at present meet desirable standards of plant, personnel, and program (Cox et al., 1938, 1940; Bowler and Bloodgood, 1935). Prevailing faults are: obsolete and unsanitary buildings, politically appointed personnel without professional understanding of their work and an obsolete attitude of punishment remaining from former decades when the training schools were still "reform schools." These faults almost invariably appear in association with each other and are often an index of the political morale of state governments and perhaps of their citizenry. The better state schools, in contrast, occupy buildings and a campus resembling a boarding school, have a professionally trained superintendent, a staff chosen under civil service, and a wholesome school atmosphere, and utilize psychological and educational knowledge in instruction.

THE JUVENILE DELINQUENT

ANTECEDENTS

The cause of commitment of delinquent boys are usually stealing or a property offense. Among girls the usual reason is actual or prospective sex misconduct, though frequently this is disguised by such omnibus terms as incorrigibility or "running away" due to the reluctance to stigmatize a girl as a sex delinquent. In states inadequately provided with homes for juveniles, dependent children are occasionally committed to institutions housing delinquents, a practice which is severely condemned. Mentally defective children ordinarily are committed to schools for the feeble-minded. Certain communities provide separate training schools for defective delinquents who would be a disturbing influence in a school for the feeble-minded and are at the same time unable to respond to the treatment afforded in the usual institution for delinquents. Even with the elimination of the mentally defective the intellectual and educational levels in correctional schools for delinquents are below those of unselected school children, the average I.Q. falling in the 80's, and the average school retardation one year or more.

The most consistent characteristic in the antecedents of institutionalized delinquents is their origin in economically underprivileged social strata. The family breadwinner is almost invariably a low-wage laborer in industry, in domestic or personal service, or on the farm. A conspicuous group in the state training schools (and in the jails and prisons) are former dwellers in the city slums. Their environmental origins coincide almost exactly with the delinquency areas shown in "spot-map" researches, such as those of Clifford Shaw (1929) in Chicago and Julius B. Maller (1933) in New York. Almost never does a committed child come from a home of comfortable economic status or from a family in the professional or managerial occupations.

Future research will probably establish that the major factor in the causation of delinquency lies in the social, economic, and cultural conditioning rather than in the individual's abnormal personality traits. The psychological conditioning which sends children on one side of the socioeconomic scale to

institutions for delinquents and often later to prisons is as subject to the laws of cause and effect as the processes which send children on the other side of that same scale to high school and college (Frank, 1936).

THE PROBLEM

From 30 to 60 per cent of the graduates of juvenile correctional schools continue in delinquency and crime and in early adulthood will be found in the penitentiaries (the Gluecks, 1940; Shaw, 1938). What is the explanation? The incoming committed delinquent is usually already seriously conditioned in socially unaccepted behavior because the committing agencies, mindful of the hazards to an adolescent's future resulting from daily living in close association within a correctional school with other adolescents experienced in delinquency, hesitate to ask for commitment until all lesser remedial expedients have been exhausted. Correctional schools of the worst type have an atmosphere resembling that of an adult prison (Cox et al., 1938). Their effect upon the inmates is likely to be a precocious "prisonization"—to use the term of Donald Clemmer (1940)—and an accelerated conditioning in criminalistic habits and ideation. What should be said about the well-staffed "model" schools or "children's villages"? One may believe a priori that youngsters living in such exemplary schools are not likely to become worsened because potent favorable conditions may counteract the effect of living daily with fellow-delinquents. But one cannot expect the outcome of from five to fifteen years of conditioning to be miraculously obliterated by one or two years of residence in a new social environment, however ideal, especially since most graduates generally return to the same social and cultural environment which trained them into delinquent behavior.

THE TRAINING SCHOOL PSYCHOLOGIST

In well-staffed training schools for delinquents there is a division of labor among sociologists, social workers, educators, orthopsychiatrists, and psychologists. But frequently the psychologist and the educator must carry the chief burden of examination and education within the institution. Fortunately the number of administrative officers with professional training in education, the social sciences, and psychology is growing, and thereby the work of the psychologist is made more effective. The work of the training school psychologist is usually divided into psychological examination and psychological therapy.

THE PSYCHOLOGICAL EXAMINATION

Pupils in the training school usually are given an intelligence examination to ascertain their mental level, preferably a Bellevue-Wechsler, or a Stanford or Kuhlmann Revision of the Binet-Simon series. Economy of time is effected by the use of suitable pencil-and-paper group tests with the more intelligent adolescents who upon interview appear to be of average or above-average ability. But self-administering tests should be avoided because of their susceptibility to malingering or insufficient motivation, a frequent problem among children under these circumstances. For the occasional pupil with a foreign-language handicap resort must be made to a performance scale (Cornell-Coxe or Arthur), though existing performance tests, because of the concreteness and specificity of their content, are not a satisfactory substitute for the Wechsler or Binet types of test with their verbal, generalized, and socialized thought-content. The examination report often comprises several different intelligence measurements upon each pupil, especially whenever intelligence is a crucial consideration in planning his training. An inadequate or misleading psychological recommendation therefrom may become a handicap to the pupil.

The problem of obtaining rapport and motivation during psychological examination among institutionalized delinquents requires especial adroitness. Adolescents of below-average ability notoriously fail to enjoy mental tests. As a group delinquents have manifested dislike of formal schooling and all activities connected therewith. The habituated delinquent tends to distrust all officialdom. A specific fear is that mental tests may be a prelude to transfer to an institution for the feeble-minded. Usually it is desirable to conduct the psychological examination as though it is a part of the school organization, and to avoid scrupulously the word "intelligence." The best method of obtaining rapport for psychological examination is to establish a reputation as "just fine," "a good sport," and "full of fun" among previous "clients," and especially among the inmate office help (known among the sophisticated adolescents as the "politicians"), who will spread the good word in the cottages and dormitories. A valuable "trick of the trade" is to terminate all examinations by an animated conversation or "bull session" on the principle that a retroactive amnesia will dispel much of the former apprehensiveness.

Placement in school grade should not be attempted

without results of educational achievement tests, since a delinquent is for many personal reasons prone to exaggerate his educational prowess. Among aptitude tests there is special need of those for mechanical abilities, since the majority of students in a training school come from home backgrounds in which "learning a trade" represents their level of aspiration. Whether the adolescent actually masters a trade during or subsequent to his brief residence in a training school is perhaps of secondary importance. What is important is the stabilizing of his ego-feelings in the competitive socioeconomic milieu to which he almost invariably goes upon his release. This is accomplished if he can assert with a modicum of correctness that he "knows a trade."

Standardized personality rating scales and questionnaires, such as the Bernreuter, the Guilford, and, more recently, the Minnesota Multiphasic, vocational interest inventories, such as the Strong, attitude scales, such as those of Thurstone and his students, delinquency rating scales, and tests of the projective type as described by Rosenzweig et al. (1944) and by Rapaport (1945 and 1946), are suggestive for the appraisal of the delinquents' assets and liabilities, although our present state of knowledge is insufficient to assert with any exactness which personality traits predispose the individual toward socially undesirable behavior.

THE PSYCHOLOGICAL RECORD

Although many excellent record blanks for use in institutions have been published (Louttit, 1947), the training school psychologist almost inevitably draws up his own form for it cannot yet be said with certainty what is relevant to delinquent behavior. There is need of uniform record blanks applicable to all delinquents, but there must be enough flexibility in them to do justice to the different problems found among pupils in the training school. For example, the content of the psychological record concerning an urban "delinquency-area product," who represents the most difficult human material in institutions, will be quite different from that concerning the small-town boy from "the other side of the tracks." In any case, the central aims of the record are to ascertain the pupil's attitudes and probable reactions toward the circumstances which will meet him upon his release, and to identify the stabilizing goal ideas within him which may be strengthened during his brief year or two of guided training.

The autobiography is a rich source of information concerning the minority of pupils who are articulate (Shaw, 1938). For the eliciting of sheer factual material an autobiography can scarcely be relied upon, nor can one be sure that it is a dependable indication of its writer's true attitudes in spite of all earnest efforts to obtain rapport. But it is a unique instrument yielding clews to the all-important question of attitudes and value-concepts of the delinquent child.

It must not be forgotten that the examination procedures described above are not ends in themselves. They are useful only insofar as they guide the development of the training school program so that its pupils will be better able to live socially acceptable lives after their return to postinstitutional life.

THE TRAINING PROGRAM

A thoroughgoing reduction of delinquency and crime is not to be expected without a comprehensive restructurization of the social and cultural milieu of which crime (and the penal reactions thereto) has formed an integral part during the centuries of history. All that may be expected from the individual- and small-community approach as practiced in the usual training school is a reduction measured in a few percentage points of the gross amount of delinquency and the amelioration of the antisocial behavior of a fraction of the individual children who come for a brief period under the training school's guidance. Society has been reckoning the cost in human happiness of delinquency and crime and has wisely concluded that the cost of training schools, even as merely a palliative, is more than justified by these few percentage points of improvement in the way of life of its younger generation.

OBJECTIVES OF THE TRAINING SCHOOL

The usual program of the training school has the following objectives.

THE CLASSIFICATION REPORT. The curiously named "classification staff meeting" summarizes the findings concerning the causes of the child's socially undesirable behavior, makes specific recommendations for the child's intrainstitutional care and training, and frequently includes predictions regarding the child's responsiveness to training and the likelihood of his staying out of difficulties upon his release. To this report may be added from time to time notes of the student's progress under the course of training with recommendations for any change of program which seems desirable.

CHARACTER TRAINING. The psychotechnology or sociotechnology by which desirable behavior may be developed during a brief few months in the training school which will endure into the child's future years has not been so well formulated as the examination procedures. To be successful there must be a socialized atmosphere or morale of sufficient potency in the training school to prevail over delinquent ideation resulting from the close association with fellow-delinquents.

The ideal would be the placing of the delinquent in a group of nondelinquents with whom he is congenial until he is conditioned into a system of habits and attitudes which renders socially acceptable behavior just as natural for him as it is for the well reared child. But nondelinquent children are not present in training schools in sufficient numbers to set the pattern, and any praiseworthy attempts to arrange extramural social interrelations with pupils in public schools are likely to be met with opposition from the townspeople (Cox et al., 1938, pp. 202–203, 365–366, 378).

Any setting of patterns of nondelinquent ideation must be by the adult employees, both professional and nonprofessional. Counseling by the guidance staff is effective for the minority of delinquents who can be made aware of having a personal problem. But the majority of delinquents manifest no great wish beyond being released and are not deeply convinced that crime does not pay. The wisest counsel is of only limited efficacy because of the wide social gulf separating the counseling staff from the counseled.

Delinquents are often pathetically eager to attach themselves emotionally to an adult whom they admire. The maintenance employee is the strategic contact man for the great majority of pupils since his laboring or farming background and his level of aspiration are identifiable with theirs. Hence the careful selection of training school employees is of the utmost importance. The wise guidance worker will recognize the limitations of his own position and will make effective use of the mediation of others whose precept and example can carry more weight with the pupils.

The aim of character-building in the training school is the development of value-concepts and goal ideas which will fortify the committed delinquent against a retrogression into socially undesirable behavior. Formal schooling and trade training, which constitute the core of instruction, not only have their practical value but serve the psychological purpose of strengthening the youth's concept of self in a culture which sets a high valuation upon educational and vocational achievement. That delinquents and criminals are responsive to this cultural pressure is proved by their well known propensity to exaggerate, even to the point of prevarication, their answers to case-record queries, What grade did you reach in school? and Do you know a trade?

Of considerable auxiliary importance in character-building at the school is training in good manners, which children of more privileged groups acquire as a matter of course, e.g., to keep one's hair combed, to take off one's hat in someone's office, to sit properly in a chair, or to say "please," "thank you," or "I'm sorry" on conventional occasions. While of little overt importance per se, these little items of behavior serve two purposes. The immediate value is their contribution to a favorable social atmosphere within the institution. Of more permanent value is the poise which comes from one's possession of good manners. When the training school graduate is asking an employer for a job or a girl for a "date," his manner must not proclaim him to be slum-reared or a "reform school" delinquent lest social pressure coerce him back into the former undesirable ways of life. His social interrelations in the new world of nondelinquents should be successful if possible, but in any case satisfying.

DISCIPLINARY PROBLEMS

Disciplinary exigencies will occur even in the best managed training schools, as in any school or family. Each disciplinary episode should be regarded as an educative crisis, and not too important. Because of the dynamogenic effect of aroused emotion the guidance staff should utilize the episode for constructive character-building. The treatment must be one which the student recognizes as fair and just, preferably at the time of occurrence if possible, but at all events in retrospect. ("I had it coming to me that time," many boys have said.) As in all fields of child-rearing, the truest punishment is the taking away for a time of cherished privileges. The humiliating and emotion-arousing disciplinary claptrap found in too many adult prisons—solitary cells, leg irons, wearing of stripes, shaving of heads, or flogging—is excluded from the best training schools. Even the spanking of children *in loco parentis* is a most dubious expedient. It must always be borne in mind that the occasional persistent disciplinary offender may be a mental case needing the specialized care of a psychiatrist.

SEX INSTRUCTION

Young delinquents of either sex usually are oversophisticated in undesirable sex activities, such as prostitution, coercing younger children into sex behavior, and blackmailing or robbing homosexual adults. Wholesome sex attitudes may be engendered by direct sex instruction and by a recreational program which will be more engrossing than sex interests characteristic of the adolescent ages. Dormitories and isolated localities should be supervised. Special care should be used in the placement of both active and passive sex offenders, and also of the younger children who are in danger of being coerced by older ones. Sleeping together on the same cot should never be permitted regardless of overcrowding. A more wholesome sex ideation may be expected in coeducational schools, though the hazards of coeducation among delinquents already predisposed to sex misconduct are obvious.

"INSTITUTIONALIZATION" OF ATTITUDE

The program which teaches children how to live together in a training school community may have the undesired effect of institutionalizing or prisonizing a delinquent in attitudes so as to render him unable to live successfully outside the institution. Every prison worker is familiar with the "state-raised" individual who makes himself a contented, well-behaved, and useful member of a prison society but who quickly "bounces back" after each release. Economic security and personal status which cannot be obtained in the competitive and uncertain conditions of life outside are experienced within an institution by a small fraction of people. Character-building in these individuals must inculcate a readiness and courage to meet life as one finds it.

READINESS FOR PAROLE

Since the cost to the taxpayers of a year's care of a committed delinquent ranges from $300 to $1,000, there is a very material reason for ascertaining when a delinquent pupil is ready for release. This is usually determined on a clinical basis in successive meetings of the classification staff. Essential criteria for parole are the suitability of the pupil's plans for living and the environmental conditions under which he will live.

PAROLE SUPERVISION

After his release the student usually comes under the supervision of the parole officers or other after-release agencies who assist him in making a successful transition to his new life. Accompanying him is the training school's report containing pertinent information concerning his character and recommendations for his guidance.

IMPLICATIONS FOR RESEARCH

The psychologist is the staff member in the usual training school who by previous training is best equipped with knowledge of research methodologies. Correctional institutions with enough of the modern point of view to provide for a psychological service usually encourage research investigations. Already there exists a splendid quantity of studies (Cox *et al.*, 1940) but countless more are needed. Especially helpful are follow-up researches of the outcomes of various programs of training for the guidance of the individual delinquent in order that future workers may increasingly base their techniques upon authentic research information.

Delinquency and crime are social problems. They will be only negligibly diminished by the therapy afforded in the correctional school. The processes conditioning people into delinquency and crime are too pervasive in our contemporary social and economic culture to be materially counterbalanced by therapeutic procedures, which are considered by some persons as only palliative expedients. They are applied to only a few hundred thousand individuals long after the social damage has been done (Frank, 1936).

The thoughtful professional worker is unsatisfied with the results attained at present particularly by the case-work method of individual study used in corrective institutions. He wishes to contribute to fundamental preventive measures, and he will find invaluable for this purpose the research data taken from social reconstruction rapidly accumulating all around him.

READING REFERENCES

Bowler, A. C., and R. S. Bloodgood, *Institutional Treatment of Delinquent Boys.* Washington, D.C.: US Children's Bureau, 1935.

Fenton, N., et al., *The Delinquent Boy and the Correctional School.* Claremont, Cal.: Claremont Colleges Guidance Center, 1935.

Frank, L. K., "Society as the Patient." *American Journal of Sociology,* 1936, **42,** 335–344.

Glueck, S., and E. T., *Juvenile Delinquents Grown Up.* New York: The Commonwealth Fund, 1940.

———, *One Thousand Juvenile Delinquents.* Cambridge, Mass.: Harvard University Press, 1934.

Louttit, C. M., *Clinical Psychology of Children's Behavior Problems* (2nd ed.). New York: Harper & Brothers, 1947.

Osborne Association, Inc., *Handbook of American Institutions for Delinquent Juveniles.* New York: The Association, I, W. B. Cox and F. L. Bixby (eds.), "West Central States," 1938; II, W. B. Cox and J. A. Shelly (eds.), "Kentucky-Tennessee," 1940; III, W. B. Cox and G. C. Minard (eds.), "Pacific Coast States," 1940; IV, A. H. MacCormick (ed.), "Virginia-North Carolina," 1943.

Rapaport, D., et al., *Diagnostic Psychological Testing.* Chicago: Year Book Publishers, Inc., 1945–1946.

Reckless, W. C., and M. Smith, *Juvenile Delinquency.* New York: McGraw-Hill Book Company, Inc., 1932.

Rosenzweig, S., et al., "An Elementary Syllabus of Psychological Tests." *Journal of Psychology,* 1944, **18,** 9–40.

Shaw, C. R., et al., *Brothers in Crime.* Chicago: University of Chicago Press, 1938.

86. PRISONS AND PENITENTIARIES

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The first organized pychological service in penal institutions in this country was initiated by Doll at the New Jersey State Prison in 1919; the next year marked the systematic examination of both admission and parole candidates by Doll and Ellis. Now prison psychologists are regular staff members of the foremost state and federal institutions. According to the *Handbook of American Prisons and Reformatories,* twenty-three penal institutions in 1933 employed psychologists.

PRISON PSYCHOLOGICAL SERVICES

The functions of psychologists in prison work vary considerably in different clinic organizations, and they vary also in particular institutions with the background, training, and interests of the psychologist, and with his personal and professional relations with other staff members. The clinical psychologist in prisons is usually a member of a group of the institution staff, composed of professional workers and administrative personnel, which is variously called the Classification Committee, or Classification Conference, Classification Clinic, or Case Work Committee. His work is distinct from that of the research psychologist or of the psychometrist who may be employed to administer tests. He determines significant aspects of abilities, achievements, aptitudes, and personality traits, and he makes recommendations for institutional classification, placement, therapy, and program, usually including action with reference to parole. His recommendations may be administrative as well as professional, or simply advisory to the executive officials.

Psychological work in prisons may be under state or federal psychiatric, or medical, auspices or independent, but is on a coordinated level with these two divisions. The functions of the psychological service in a few representative organizations will be noted.

In New York State the prison psychologist has rather detailed and technical job specifications as to psychometric work and as to areas to be covered and interpreted by interview methods. In the Western State Penitentiary of Pennsylvania the Department of Case Work is composed of psychologists and they do social investigations as well as the institutional psychological work. In the Illinois prisons the psychologists are members of the diagnostic units, which are composed of psychiatrists, psychologists, and sociologists, with a psychiatrist as head of each unit, the units being under the direction of the State Criminologist. In the Federal Bureau of Prisons psychologists are on the medical staff of the United States Public Health Service. In New Jersey the psychologist is on the staff of the State Prison and the psychiatrist is on the staff of the Trenton State

Hospital, the psychiatrist being assigned part-time and the psychologist full-time. Until recently the psychological work in practically all of the state charitable and correctional institutions of New Jersey has been under the supervision of the Chief Clinical Psychologist of the New Jersey Department of Institutions and Agencies.

PSYCHOLOGICAL PROBLEM

The New Jersey State Prison receives commitments from the entire state, including rural, urban, and industrial areas, and a report of its admissions indicates in a general way the psychological problems of work with prisoners elsewhere and particularly in the Eastern states. Of 1,318 admissions for two years (July 1939 to June 1941), 58.3 per cent were native white, with both parents native in 27.5 per cent; one or both parents Italian in 10.5 per cent; one or both Polish in 5.1 per cent; one or both Irish in 3.1 per cent; one or both of other foreign nationality in 12.1 per cent. Of the total group of admissions 9.6 per cent were foreign born, 2.9 per cent were Italian, 1.3 per cent were Polish, and 5.4 per cent were other foreign born. Of the 1,318 admissions 32.1 per cent were colored.

AGE

The median chronological age of these 1,318 admissions fell in the thirty- to forty-four-year category, with 39.1 per cent below and 17.4 per cent above it. Native whites were somewhat lower than colored in median age; 43.9 per cent and 39.1 per cent respectively were below the thirty- to fourty-four-year grouping and 13.7 per cent and 12 per cent respectively above it. The foreign born median age was in the forty-five- to fifty-four-year range, with 41.3 per cent below and 22.2 per cent above this group.

LITERACY

The median literacy, which was the average of two Stanford Achievement Reading scores, fell within the fifth to eighth grade level. Of the native whites 3.6 per cent were illiterate, 16.4 per cent of first- to fourth-grade level, and 46.7 per cent of fifth- to eighth-grade level. Of the foreign born, 41.3 per cent were illiterate and 23.8 per cent of the first- to fourth-grade level; and of the colored, 13.4 per cent were illiterate and 39.9 per cent of the first- to fourth-grade level.

MENTAL LEVEL

Median mental age for the 1,318 admissions was 13 years. For native whites it was 13.9 years; for foreign born, 11.1 years; and for the colored, 11.4 years. Of these admissions, 3.6 per cent were classified as definitely feeble-minded, as judged by impressions of social adequacy and level of insight and by intelligence test level. Borderlines totaled 16 per cent. The colored in particular and the foreign born had higher percentages of feebleminded and borderlines than the native whites.

OCCUPATIONAL ADJUSTMENT

Of the total, 16 per cent were rated as industrially unskilled and 60 per cent as semiskilled. Native whites were rated significantly higher in skill than the colored. The foreign born had a significantly higher median industrial skill than the native whites, probably as a result in part of the greater age of the foreign born group. The native whites had significantly higher percentages above average and superior in industrial skill than either the colored or the foreign born.

ILLUSTRATION OF PROBLEM

The charts on mental level of 3,000 adult offenders, shown by offense and by nativity and color give results tabulated in 1934 in New Jersey. They combine reformatory and prison data, as about 20 per cent of the inmates at the Rahway Reformatory had been transferred from the State Prison. The combined data have some value in generalizing the characteristics of the total group of adult offenders. (See Figures 1 and 2).

There is a rather striking consistency from year to year in the percentages of prisoners of various mental levels, of those rated as of particular levels of industrial skill, and of ratings of economic status, trustworthiness, and stability.

PSYCHOLOGICAL INVESTIGATION PROGRAM

CLINICAL APPROACH

Prison clinical psychologists, who are responsible for the interviewing of prisoners and for sharing in the programs of therapy, placement, and parole action in the prison, require experience in qualitative evaluation of the prisoner's background along with their techniques in psychological examination by means of standardized measures of general mental level, personality, aptitude, and vocational, educational, and social proficiency. Estimation of the degree of incorrigibility or antisocial trends, or the obverse strength of character, and consequent likelihood of parole success, when taken in connection with the

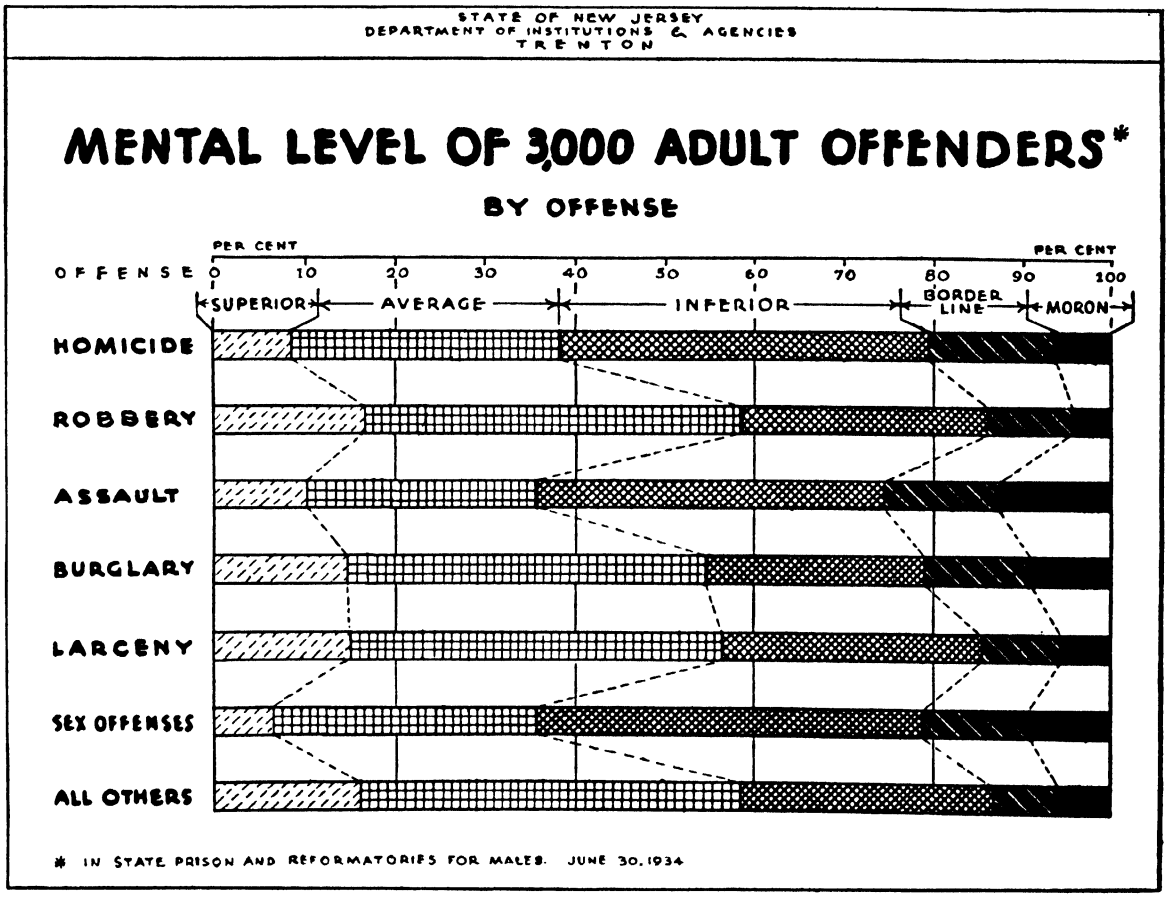


Figure 1 (XIII–86)

estimated strength or weakness of family ties and community prospects, necessitates a clinical approach supported preferably by broad psychological experience in education and industry.

The psychological examination or investigation programs of prisoners in the state institutions of Illinois, Pennsylvania, and New Jersey were the best organized of the various states prior to World War II. They will be briefly discussed as of 1941.

ILLINOIS

Psychological examination of intellectual capacities of incoming prisoners has been the chief concern of Illinois prison psychologists. Group tests are administered to all offenders. Individual tests are administered to those who (1) score low in group tests, (2) present unusual problems, (3) are being considered for parole or discharge, (4) are being considered for commitment to an institution for the feebleminded. The same basic tests were retained from 1919 to 1941. The Bregman Revision of the Army Alpha in 1941 was used for group testing, and either the Grace Arthur Performance Scale, the Wechsler-Bellevue Adult Intelligence Scale, or the Cornell-Coxe Performance Ability Scale for individual testing. Achievement tests, clerical tests, and vocational interest inventories were given when indicated as desirable. The Illinois psychologists have carried on a research program. Some of their results are reported later in this chapter. The techniques of the sociologists in the Illinois institutions overlap to some extent those of the psychiatrists and the psychologists in other organizations.

PENNSYLVANIA

An interesting contrast in psychological investigation of prisoners is presented by the work in the Western State Penitentiary of Pennsylvania. All admissions

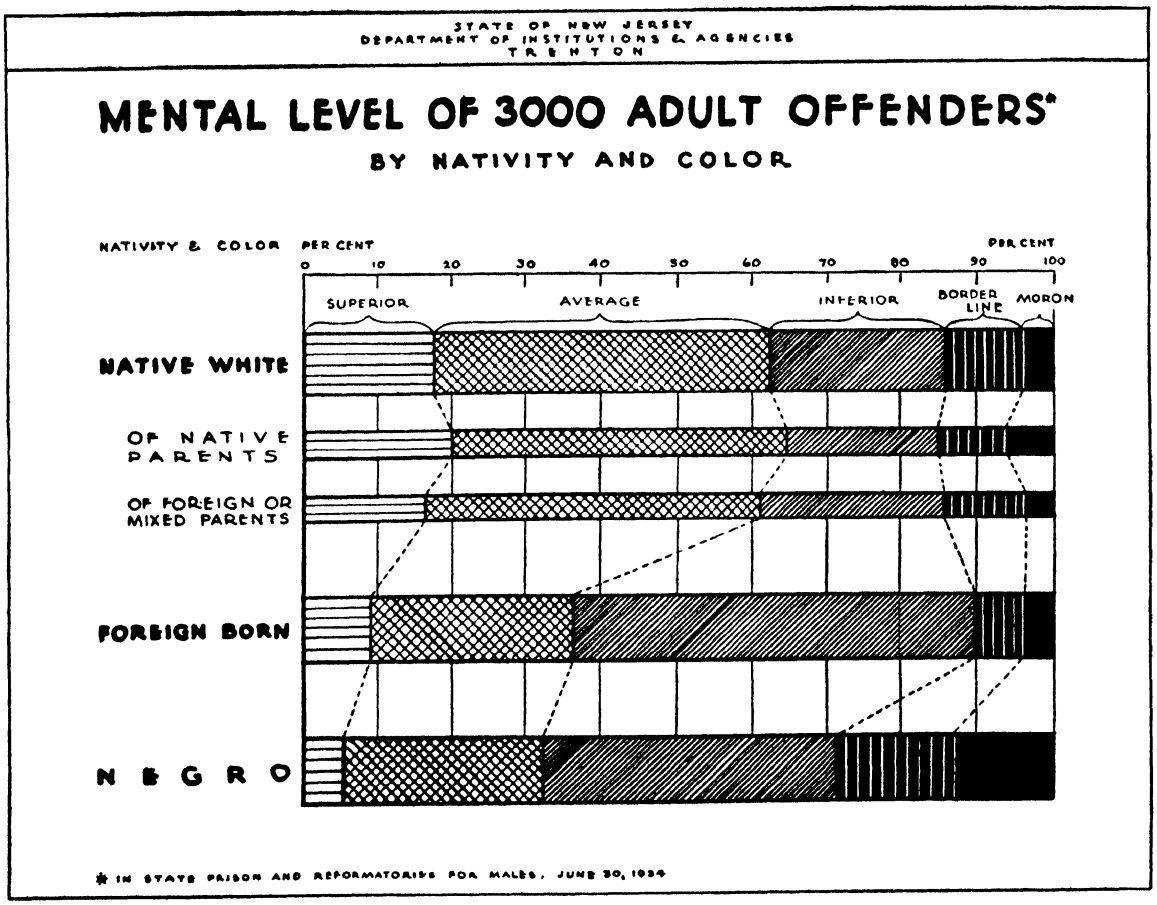


Figure 2 (XIII-86)

are examined by the Department of Case Work, which is composed of psychologists. In 1941 the Scovill Classification Examination was given in group, and to those scoring below 125 on it the new Stanford Binet was administered. The Woodworth Psychoneurotic Inventory was given individually. It was not the practice to administer a large variety of tests routinely, but the Ferguson Form Boards, the Dearborn Form Boards, the Cornell-Coxe Scale, the Kent-Shakow Form Boards, and other tests have been experimented with in this institution. A history of each prisoner is obtained by the psychologist. A field investigation proceeds through correspondence, and with about 65 per cent of the prisoners (in 1941) through actual contacts with persons who know them. The prisoners' histories include a digest of the field data, the psychological record of examination, and all other information available. The job specifications of the psychologist at the Eastern State Penitentiary of Pennsylvania are similar to those at the Western State Penitentiary, except that they do not include responsibility for field investigations.

NEW JERSEY

Psychological measures used at the New Jersey State Prison include verbal and performance group tests of general mental level, group tests of vocational aptitude, of clerical aptitude, and tests of industrial or trade competence. Individual tests of general mental level are used in selected instances. Results of educational achievement tests, which are administered by the psychologist or by the Director of Education, are available prior to the psychological testing noted above. Psychological tests are selected for their appropriateness with prisoners, among whose number are many of inferior education, low occupational status, and language handicaps. Personality adjustment inventories, attitude scales, and

temperament scales have been tried with small groups. The results of such instruments are checked against the data and impressions of the interview.

THE INTERVIEW

A systematic and fairly standardized interview is administered by the psychologist in the New Jersey State Prison and it is expanded in areas appearing most pertinent to the individual prisoner. Data are accumulated on family history and background, including birthplace, age, literacy, occupations, delinquencies, obvious mental abnormalities, and family relations. In collecting data on family relations the place of upbringing is noted and special reference made to emotional insecurity, friction with parents or siblings, and present attitudes and apparent insight with regard to such conflicts. Information is secured on marital relations, outstanding attitudes to wife and children if married, and economic status. School history, work record, and work preferences are covered. Industrial skill is rated on a 10-step scale in which oral or picture trade tests may be used. The prisoner's estimate of his health is taken. His sexual, alcoholic, and narcotic habits are considered. Any nervous symptoms and his present worries are noted. Recreations, memberships in juvenile and adult organizations, church membership and church attendance, and often a discussion of attitudes toward the church, are covered in the interview. Cultural and aesthetic levels and associated factors are investigated in part through data on reading, radio listening, and other spare-time activities. An attempt is made to secure a rough time-and-interest budget of spare-time activities. Antecedents, motives, companions, and court action in relation to items of the prisoner's previous criminal record are discussed. There is discussion in detail of the offense, or offenses, for which the inmate was last committed, this being pivotal in many admission interviews, much as the "complaint" in mental hygiene case work is important as a point of departure and early focus of investigation. Information on the offense, or offenses, is recorded in essential details in the prisoner's Classification Summary as his account of his offense. The stenographic account of the psychiatric report is available for comparison. Interests, aptitudes, and educational and occupational status are considered in the interview when discussing work placement, schooling, correspondence courses, and parole plans.

RECORD ANALYSIS. From these data and impressions of the interview, together with the test data and their interpretation, an attempt is made in the findings or record analysis to note outstanding factors in the individual's history and background, important characteristics as to intellectual, educational, and occupational status, and dominant trends, interests, habits, attitudes, sentiments, and current worries. Evidence of deterioration or delusional trends may be noted.

Judgments may be expressed or implied in the record analysis as to general egocentricity, or inadequacy, or instability, or, on the other hand, of adequate insight, constructive attitudes, and probably favorable outcome. Projections or rationalizations may be indicated as suspected or fairly certain. Questions of the subject's veracity are frequently noted. Interpretations are generally cautious and qualified because of limitations of data, that is, lack of check on some or many of the prisoner's statements. An impression as to amenability or antagonism in the current situation is noted; stability in general and anticipated trustworthiness in the institutional situation are rated on a 5-step scale.

A special difficulty in record analysis is the estimation of the subject's frankness and cooperation. Consistency and likelihood of statements are checked through the interview data. Succeeding interviews, statements to other examiners, data available in probation reports and from previous institutional and parole records serve as additional checks.

RECOMMENDATIONS. Independent estimates by the psychiatrist and the psychologist of the inmate's amenability, stability, and trustworthiness are used in deciding on the program of custody. The psychologist makes recommendations in all admission cases as to transfer to other institutions, more particularly the Senior Reformatory, treatment, custody, and program. Psychological recommendations in connection with those of the Director of Education have special weight in school placement, and in connection with the recommendations of the Director of Industries they have special weight as to shop and industrial placement. The psychologist acts as liaison officer in interpreting some of the psychiatric findings and recommendations in meetings of the Classification Committee. He may refer prisoners for psychiatric reexamination. Independent recommendations are made by the psychiatrist and the psychologist to the Classification Committee and to the paroling authorities of the institution.

CLASSIFICATION

Classification serves a dual purpose, as noted by

William J. Ellis, then Commissioner of the New Jersey Department of Institutions and Agencies, at the 1940 Congress of the American Prison Association: first, in permitting the development of an individualized program suited to the needs of each prisoner so that special services and training are made available for him, and second, in determining prison planning in definite and tangible ways: (1) as a guide to custody, (2) as a measure by which to develop work and employment, (3) as a guide to educational training and recreational activities, (4) in the comparatively little used but challenging field of prisoner adjustment in county jails, (5) as an aid to sentencing procedures, (6) as a prerequisite for parole, and (7) as a contribution to research, looking toward the solution of problems of crime and delinquency.

Classification work at the New Jersey State Prison is closely integrated with the program of the New Jersey Department of Institutions and Agencies. Psychological reports and recommendations are made on all admissions, parole violators, monthly applicants for parole to the Board of Managers in indeterminate sentence cases, applicants for clemency through the State Parole Board, and other reclassifications. Of special interest are prisoners committed by county judges under a recent statute for an observation and study period up to 90 days prior to sentence. Recommendations made on these inmates by the Classification Committee of the State Prison are reviewed by the State Commissioner of Institutions and Agencies. Field investigations for them are made by the Division of Parole of the State Department of Institutions and Agencies, which also is responsible for all parole investigations of State Prison cases. In the future these pre-sentence examinations will be made at a Diagnostic Center, now under construction.

The classification program at the Western State Penitentiary of Pennsylvania is directed by the prison psychologist. Prisoners examined by the psychiatrist are, for the most part, referred by the psychologist as showing psychopathic, epileptic, or definitely psychotic trends. The resident physician usually refers prisoners to the psychiatrist through the psychologist.

RECLASSIFICATION, INCLUDING PAROLE

Reclassification, including the appearance of a prisoner for parole consideration, takes account of information available from all sources, among which are records of shop, or other work, and of disciplinary adjustment. Data and recommendations from various sources, including those of the parole officer or others responsible for securing information on home conditions, are pooled in the decision on parole. Reclassification examinations may involve retesting to answer questions of suitability for particular work or placement, validity of original results, and improvement through a lengthy period in the institution. A considerable percentage involve a review of the prisoner's total history and judgments as to his suitability for parole from the point of view of trust or responsibility. Psychological parole reports in New Jersey point out outstanding strengths or weaknesses of the prisoner in abilities, achievements, habits, attitudes, and insights, supporting ties on the outside, and desirable conditions for release. The psychological outcome in terms of likelihood of parole success is estimated.

THERAPY

The purposes of psychological therapy in a prison, according to Dr. G. I. Giardini, former Senior Psychologist of the Western State Penitentiary of Pennsylvania, now General Director, Pennsylvania Board of Parole, are: (1) institutional adjustment, (2) personality and habit improvement and guidance, (3) improvement of family relationships, and (4) parole planning. The fact that prison psychologists often work under medical or state hospital auspices is indicative of the approach in penal work of abnormal psychology and mental hygiene. The psychologist does not attempt prolonged analyses but is in charge of therapy and the reeducation of a good many prisoners through repeated interviews and follow-up studies. He is available for interview upon request; he may give advice on reading, vocations, and study courses. Prison psychologists sometimes develop rapport with prisoners requiring tactful and considerate handling which may continue, officially or unofficially, for years.

RESEARCH

ABILITY

Psychological research among prison populations has been concerned in large measure throughout its history with the relation of intelligence and ability to criminal records and to the social situation in which the prisoner finds himself. Illustrations of research will be drawn from New Jersey and Illinois, showing the relations of abilities and other factors in the population of adult prisoners.

NEW JERSEY. When one takes into account the

weighting of the prison population by a relatively large proportion of foreign born and Negroes, the prison group is about on a par in tested intelligence with the Army draft of 1918 (Doll, 1919; Murchison, 1926). Doll (1929) found a significantly higher percentage of feeblemindedness among delinquents as compared with the population at large, but the percentages of mental deficiency decreased in progressing from juvenile delinquency institutions to prisons for adult offenders. He noted (1919) that the mental ages of the foreign born, Negro, and native white prisoners were of unequal value in predicting social fitness. This conclusion has been verified in studies of Klineberg (1928; 1931) and others (Porteus, 1931; Peterson, 1925) on the cultural relations of tested mental level.

The New Jersey Juvenile Delinquency Commission (1939) compiled life stories of inmates in the state's correctional institutions, attempting in about fifty histories to meet the standards set in Dollard's criteria (1935). Questionnaires answered anonymously by hundreds of inmates supplied additional data. The Commission drew certain general conclusions, and a series of recommendations were made for improved handling of delinquency: establishment of a state children's commission; establishment of county and municipal children's bureaus; constitutional sanction for progressive methods of handling juvenile delinquency; establishment of a state child study institute; mandatory social and clinical study of offenders of sixteen to twenty years of age before sentence; modifications of the juvenile court; adjustment of the Education Act; provisions for adequate probation and parole service.

Minor studies are reported in the New Jersey State Prison annual reports of bandits, escape cases, nationality and color with relation to type of crime, the percentage of "defective delinquents" in the prison population (using various criteria of psychological and psychiatric data and of previous criminal record in the definition of "defective delinquents"), vocational aptitude test results as correlated with other measures, idle as compared with employed inmates, and the regular tabulations of admission data as to mental level, industrial rating, ratings of economic status, stability, and trustworthiness.

The bandit study (1927) compared 240 bandits with 1,074 nonbandits and 86 doubtful cases. Bandits were defined as those committed on charges involving use of a deadly weapon to intimidate, injure, or kill for the purpose of committing robbery. Bandits were 4.7 years younger in median age than nonbandits, of relatively superior mental age, intelligence level, and educational achievement. They had larger percentages of "constitutional defectives" and smaller percentages of "drug addicts" and "chronic alcoholics," as shown by psychiatric diagnoses. There were more "unstable" and markedly more "untrustworthy" cases among them. They were somewhat more often unmarried, had relatively more native whites as compared with nonbandits. There were markedly higher ratios of native whites of Italian parentage and Polish parentage than of foreign born Italians and Polish. The distribution by previous criminal record showed a somewhat greater proportion of bandits with probation, "other reformatory" (than New Jersey) and "other prison" records, whereas the nonbandits showed a markedly larger proportion of previous jail commitments and a somewhat larger proportion of commitments to the New Jersey State Prison. No significant differences were shown as to physical condition, plea, or occupational status. The bandits had a median term of 3.5 years greater than that of the nonbandits.

Stoflett's Study of National and Cultural Differences in Criminal Tendency (1935) showed the change in social patterning of crime with the passing of time and acceptance of the American *mores* among New Jersey State prisoners. Holsopple (1932) found significant correlations between failures in social adjustment of reformatory inmates and failures in the mirror drawing test, indicating that the results of this test probably reflect significant personality trends.

ILLINOIS. Tulchin (1939) found that male offenders in Illinois do not differ materially from males of the general population in intelligence. But the intelligence level is related to the type of crime, the highest median Alpha scores being made by those committed to prison for fraud, and the highest percentages of men committed for murder and for sex crimes being inferior among the prison population in intelligence. Brown and Hartman (1938) surveyed the intelligence of 13,454 adult male admissions to Illinois penal institutions during 1930–36. On a combined scale (Bregman Army Alpha, Stanford-Binet, and Arthur Performance Scale) the average mental age was about thirteen years eleven months; 10.2 per cent fell below the mental age of ten years six months. They concluded that Illinois prisoners show approximately the average level of intelligence revealed for the adult population by the Army draft of 1917–18, that they show a more heterogeneous distribution

of intelligence than that of the adult population, with a disproportionate amount of mentally retarded and mentally defective men.

Recidivists score higher in Alpha medians than men serving their first sentence (Tulchin, 1939). Hartman (1940) studied the official criminal histories of 4,118 native born white felons admitted to Joliet for classification from 1934 to 1939, and reported the average intelligence rating of recidivists as significantly above that of first offenders and the proportion of feebleminded practically the same. Recidivists showed higher average intelligence ratings in all criminal categories except that of sexual offenses. Most marked intellectual superiority was found in the robbery and larceny groups. Among the first offenders those with previous minor records usually were lower in intelligence than those with no previous criminal records. Other criteria confirmed the conclusion that recidivists were of higher intelligence than first offenders. The question arises whether greater sophistication in the institutional test situation might not account in part for the superiority of recidivists found by Hartman and Tulchin.

PERSONALITY

Numerous psychiatric studies have indicated larger percentages of psychotics and psychopathic personalities among prisoners than would be expected in the population at large, but these have been based on psychiatric diagnoses rather than on psychological measurement. Studies of the past two decades indicate the importance of cultural and social conditioning as contrasted with earlier emphases on static organic conditions or trait syndromes (Shaw, 1929; Maller, 1933; Healy and Bronner, 1936).

Prison psychologists usually depend in their interviews on rating scales or estimates of instability and other personality traits of prisoners. But Horsch and Davis (1938) compared inmates of three levels of penal institutions in Colorado on scores in the Bernreuter Personality Inventory. They found significant differences between the institutional groups and between the general population and these groups. The criminal groups had more self-sufficient and unsociable reactions, and the penitentiary group was more emotionally unstable, introverted, submissive, and self-sufficient than both the general adult population and the reformatory group.

FEDERAL PENAL SYSTEM

The US Public Health Service was by Act of May 15, 1930 made responsible for furnishing and supervising the medical and psychiatric care of inmates in federal penal and correctional institutions under the jurisdiction of the US Bureau of Prisons. In 1941, it employed about fifteen psychologists to work on classification procedures and on individual and group therapy with special classes of prisoners. These psychologists contributed to a considerable program of research on the psychopathic prisoner, narcotic prisoners, the Rorschach, and other specific tests, the formulation of a psychological testing program for the prison service, the restandardization of tests for prison groups, and the establishing of institutional test norms.

PRESENT OUTLOOK

World War I stimulated development and application of psychological techniques that were later used in prison work. So, too, recent advances in psychological measurement and in occupational analysis of World War II, many of which are not yet released for general use by professional psychologists, will be of direct value in guidance and retraining programs within penal institutions, as well as elsewhere, and in supplying comparative norms for research. Measurements of interests on a level applicable to the prison population, and of other aspects of personality, character, and attitudes, are quite likely to be applied in prison work. The Minnesota Multiphasic Personality Inventory is promising. Psychogalvanic and electroencephalographic techniques and other psychophysiological measures have been developed for the measurement of deception and may be applied more widely to prison use. Measurements of attitude and parole prediction may be refined through such instruments. Projective techniques give promising leads for further study. Group therapy is likely to be used more widely. Meantime the clinical observational techniques now in use require a more effective method of pooling data and integrating recommendations from different specialists whose fields of observation overlap and whose techniques supplement each other.

The job of classification and therapy within the institution should be coordinated with the work of constructive community agencies both before and after the prisoner's release. Some institutions that have relatively satisfactory psychological service are handicapped by lack of means for securing adequate home and court reports to check on the statements of the prisoner on admission and to plan for rehabilitation. Research in an appraisal of psychological serv-

ice in prisons is needed if for no other reason than to relieve the overworked prison psychologists of any unnecessary load.

The effectiveness of psychological services in prisons is conditioned by current penological policies and philosophies of institutional and state programs. These change gradually as effective service is demonstrated to society and there is social demand for psychological services in prisons and penitentiaries.

READING REFERENCES

Attorney General's Office, *Survey of Release Procedures of Prisons*. Washington, D.C.: Government Printing Office, 1940, Vol. V.

Bird, Charles, *Social Psychology*. New York: Appleton-Century-Crofts, Inc., 1940, Chap. 13, "Juvenile Delinquency."

Branham, V. C., and S. B. Kutash, *Encyclopedia of Criminology*. New York: Philosophical Library, Inc., 1949.

Brown, A. W., and A. A. Hartman, "A Survey of the Intelligence of Illinois Prisoners." *Journal of Criminal Law and Criminology*, 1938, **28**, 707–719.

Clemmer, D., *The Prison Community*. Boston: Christopher Publishing House, 1940.

Doll, E. A., "Principles and Methods of Individualized Penal Treatment." *Journal of Criminal Law and Criminology*, 1936, **26**, 695–702.

Ellis, W. J., "Practical Results of the Classification Program," in *Proceedings of the Seventieth Annual Congress of the American Prison Association*. New York: The Association, 1940.

Gray, J. S., et al., *Psychology in Use*. New York: American Book Company, 1941, Chap. 3, "How Is Psychology Used in Clinical Practice?"; Chap. 9, "How Is Psychology Used in Law and Criminology? Part I. Psychology in Law. Part II. Psychology in Criminology."

Hartman, A. A., "Recidivism and Intelligence." *Journal of Criminal Law and Criminology*, 1940, **31**, 417–426.

Holsopple, J. Q., "The Social Adjustment of Delinquents Who Are Unable to Inhibit Old Automatic Perceptual Responses." *Journal of Social Psychology*, 1932, **3**, 91–96.

Hunt, J. McV. (ed.), *Personality and the Behavior Disorders*. New York: The Ronald Press Company, 1944.

Louttit, C. M., *Clinical Psychology of Children's Behavior Problems* (2nd ed.). New York: Harper & Brothers, 1947.

Metfessel, M., and C. Lovell, "Recent Literature on Individual Correlates of Crime." *Psychological Bulletin*, 1942, **39**, 133–164.

Richards, T. W., *Modern Clinical Psychology*. New York: McGraw-Hill Book Company, Inc., 1946.

Schroeder, P. L., *Annual Report of the Criminologist Including the Institute for Juvenile Research (July 1, 1939, to June 30, 1940)*. Springfield, Ill.: Illinois Department of Public Welfare, 1941.

Seliger, R. V., et al. (eds.), *Contemporary Criminal Hygiene*. Baltimore: Oakridge Press, 1946.

Shaffer, L. F., *The Psychology of Adjustment*. Boston: Houghton Mifflin Company, 1936.

Shakow, D., "The Training of the Clinical Psychologist." *Journal of Consulting Psychology*, 1942, **6**, 277–288.

Shartle, C. L., *Occupational Information*. New York: Prentice-Hall, Inc., 1946.

Sutherland, E. H., *Principles of Criminology* (3rd ed.). Philadelphia: J. B. Lippincott Co., 1939.

Symonds, P. M., *The Dynamics of Human Adjustment*. New York: Appleton-Century-Crofts, Inc., 1946.

Traxler, A. E., *Techniques of Guidance*. New York: Harper & Brothers, 1945.

Tulchin, S. H., *Intelligence and Crime*. Chicago: University of Chicago Press, 1939.

Young, Kimball, *Personality and Problems of Adjustment*. New York: Appleton-Century-Crofts, Inc., 1945.

CHAPTER XIV

CONSULTING PSYCHOLOGY

87. The Consulting Psychologist in Business and Industry	Wallace H. Wulfeck
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87. THE CONSULTING PSYCHOLOGIST IN BUSINESS AND INDUSTRY

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PRESENT STATUS OF THE CONSULTANT

People are the most valuable asset of any business enterprise. Since the beginning of the Industrial Revolution this obvious point of view has, until very recent times, been buried beneath the trappings of management. Problems of finance, invention, raw materials, production, and sales have been the dominant concerns, each assuming major importance as industry's place in the national economy faced an external shift in emphasis.

During the past quarter century, management has brought its major asset—manpower—into much sharper focus. When management came to realize that machines, materials, production, and sales are first and last the products of men, it was face to face with an urgency to discover and utilize scientific tools for the direction and control of its principal asset. This being true, it is fairly easy to see the growing importance of the relationship between the consulting psychologist and business management.

Scientific psychology has been making its impact upon business and industry for little more than twenty-five years, but intensified use of psychology came only as the result of serious production emergencies created by the wartime economy. Six years can be reckoned as the span in which psychology in industry came of age.

But still, considering the tremendous expansion of American industry, the 57 million men and women in its work force, and the consequent problems which arise, not only from the relations of industry to its employees, but also from the relationships between industry and consumer, the psychologist continues to make only a minor contribution. The reasons for the failure of business to make full utilization of the knowledge and skills of the psychologist and of the psychologist to demonstrate his capacity to work in these areas, must be taken into account in any discussion of the consultant's role in business and industry. These reasons lead directly to a discussion of two points of view: industry's attitude toward the psychological consultant and the historical point of view of the psychologists toward industry. Knowledge of the classical points of view held by both groups helps to clarify our thinking about the future role of the psychologist.

In the following discussion, it should be borne in mind that, while psychology's contribution to industrial problems has been small in terms of the over-all size of American industry, nevertheless many of the contributions have been significant, if not signal in importance. If a generalization may be made, management's traditional attitude toward the psychologist in industry is simply that the psychologist is another technical expert who speaks in a "long-haired" jargon the executive does not understand. The conceptions of the areas in which the psychological consultant can or will work differs widely from one manager to another. But one thing is certain: the executive is never concerned with, nor does he understand, the "specialties" into which psychologists like to place themselves. If he is at all sympathetic toward the applications of psychology to his problems, he tends to think of this "expert" as one who can readily apply known laws of the human mind or behavior toward the solution of day-to-day operating problems. He is frequently beset by the intangibles in human behavior and seeks formulae which, by slide-rule manipulations, can provide a "quick" answer. To use Overstreet's title, the businessman likes to think of the psychologist as one who knows "Why We Behave Like Human Beings." Moreover, his interest is always practical. It leads him to expect that established psychological laws can readily be applied toward the solution of almost any problem rising out

of human behavior or relationships. Only rarely does he regard the psychologist as a person who attempts to apply experimental method in the hope of discovering a scientific solution to the problem at hand. Strangely enough, examples of this attitude can be found in many large industries employing extensive staffs of chemists and physicists who enjoy complete freedom in research. Notwithstanding this experience they still are unwilling to grant the psychologist the same opportunity of applying scientific methods to the solution of the baffling human problems within their organization. This give-me-an-answer-off-the-top-of-your-head attitude is undoubtedly a result of the layman's notion that there is something mystical or "spiritual" in the operations of the human mind. Although they are, for the most part, downright skeptical of palmistry and phrenology, their attitude still reflects an unconscious belief in the myths which have grown out of primitive attempts to explain human motivation.

The consultant runs into this attitude almost daily. He finds himself confronted with the necessity of "selling" psychology as a scientific discipline. The fault, if there be a fault, in this situation must be laid directly at the door of modern psychology. In its earnest attempt to free itself from its philosophical antecedents and to establish itself as a "pure science" discipline, it has had relatively little interest in the application of its results or methods to the everyday problems of our industrial civilization. Fortunately both industry and psychology are adjusting their attitudes.

The signs of a favorable transition are strong and clear. The unbelievably complicated problems of modern technical warfare have forced a great number of psychologists, whose interests hitherto were limited to pure research, into the immediate necessity for applying their techniques toward the solution of practical problems. Moreover, the mushroom growth of infant industries, for example, aircraft, under the war impetus has dramatized several ways that psychology can speed up the organization and efficiency of a vast new production program. Testing for selection, placement, training, and upgrading of mechanical workers was a natural field for the applied psychologist. This is only one among the many areas of service to be discussed as we go along. But before we consider the wide ramifications of our opportunity, it would be well to indicate a few cautions for the professional worker who plans to enter this field.

SCOPE OF OPERATIONS

In general, the human problems in business and industry fall into five major categories:

1. Those arising from the interaction between management and workers as individuals, and as organized labor groups.
2. Those arising from the in-the-plant relationships between the workers themselves and indirectly with the social integration problem of the workers outside the plant, e.g., family, social-group, and community-group problems.
3. The bio-mechanical or man-machine, man-methods problems.
4. The influence relationships existing between the manufacturer, his distribution and sales organization, his advertising program, and the consumer.
5. Public relations activities affecting stockholders, the general public, and, more recently, government agencies.

To a greater or less degree the consulting psychologist will, at some time in his career, be confronted with complicated questions stemming from every one of these areas of business relationships. From this outline it can readily be seen how broad the consultant's scope of operation may be. This breadth of field presents at once the major challenge and the greatest source of difficulty to the consultant.

DANGERS AND OPPORTUNITIES

To discuss the difficulties first. From the foregoing it is apparent that the psychologist will at times find himself sorely pressed to be "all things to all people." For this reason, the individual consultant is often at a serious disadvantage as compared to an organization or group of consultants since few men are endowed with the capacities for competence in so many and varied fields of inquiry. A clear recognition of his own and psychology's limitations is essential. He must have the courage to refuse to deal with problems beyond his competence to perform. Nevertheless, this diversity of responsibility is a very real situation and demands workers in the field who have a somewhat unique experience, training, and a definite bent for the ingenious approach. The overcautious temperament, the professional inferior, the unscientific mind, and the poorly trained will find tough sledding as consultants to modern business

and industry. Contrary-wise, the toughminded, direct-thinking and curious, adventurous scientist will find ample scope for his activities, accompanied by both financial and professional rewards. The challenge is exciting and stimulating if experience and training has engendered within him a high degree of professional confidence built upon competence, ability, and integrity.

Preparation for the field must include, in addition to formal scientific psychological education, extended work experience in business and industry, a sound foundation in economic theory, a grasp of mechanical and production problems and, above all, a belief in the essential soundness of the competitive business system.

TIME, AND THE PROBLEM OF URGENCY

Modern business is always in a hurry. Materials schedules, production schedules, sales quotas, and a thousand and one time programs in industry reflect the tempo and temper of our time. This technology of speed has given rise to a psychology of speed that forcibly impinges upon the research program of the psychologist-consultant. Facts, programs, and decisions based on research are always needed "yesterday," as the saying is.

The consultant is constantly forced to resist pressure for speed in research on the one hand, and demands for snap judgments on the other. Hurried science is seldom scientific and the consultant will, in the long run, destroy his usefulness and face ultimate failure if he presents partial, unverified evidence or unconsidered decisions on which management will make policy decisions.

To be sure, the necessity for close tolerances of measurement are often less rigorous in the humanistic sciences than they are in the natural sciences. Frequently, direction of trend is all that is required. Even then such estimates take time if every facet of the problem is to be explored and taken into account in plotting the trend. The very lack of precision in the techniques employed in most of the research done in the field tends to increase the time required to arrive at convincing evidence. Perhaps the time will come when our methods will have reached such a state of perfection that the time element can be predicted and controlled.

With this brief discussion of the over-all problems and responsibilities of the consultant we may now turn to a discussion of the nature and varieties of research techniques employed in the field.

FIELDS AND TECHNIQUES OF RESEARCH

The psychological research methods employed in business and industry are in part determined by the process or function to be investigated. The solution of sales and distribution problems requires different methods than are generally employed in developing a program for the selection of personnel. There are times, however, when the techniques used in one area are admirably fitted for use in a totally unrelated field. An example of this was the use of public-opinion-polling methods to uncover hidden pools of female labor for certain war industries.

For convenience we shall discuss research techniques under four general headings: production, distribution, public relations, and management problems.

PRODUCTION RESEARCH

The human problems which fall within this category of work must again be subdivided three ways for convenience of treatment: (1) those related to personnel functions, (2) those commonly called labor relations functions, and (3) those described as biomechanics. Essentially the methods employed involve the measurement of the occupational or industrial environment as it conditions behavior itself, and measurement of the results of the behavior. The ultimate aim of these measures is, insofar as possible, the prediction and control of human behavior in industry in order to increase productivity.

PERSONNEL FUNCTIONS. Psychology's earliest contribution to business and industry came from the application of mental tests to the selection of personnel. Depending on one's point of view, the antecedents of this movement may be traced back to Fechner's work in psychophysics or to Binet and Cattell's early work in test development. What is more important, however, is the fact that men like Vitelles, Scott, and Bingham, among others—all contemporary psychologists—first applied test procedures to industrial problems within the past thirty years or more. Within that brief span the value of these methods has grown tremendously. Today they are universally employed in all major industry. Competence in the use of standardized methods and ingenuity in the development of new techniques are essential qualifications of the consultant.

In outline, the basic elements of the consultant's armamentarium are as follows:

1. Job analysis and description; the process of breaking down into its simple functional components each industrial operation. From this analysis a precise description of each component operation is prepared. This process not only can be applied to manual tasks in office or factory, but also can be used effectively with practically all jobs—selling, supervising, or managing. The techniques employed include among others: time and motion study, evaluation of personality interaction, and attitude measurement. From these analyses and descriptions there may be established—
2. Job specifications; careful listing of the personality traits, skills, aptitudes, abilities, and temperament of the workers best fitted to perform a given function at the highest level of efficiency.
3. Selection techniques and tools; the development of standardized employment procedures using, where indicated by research, such tools as formalized application blanks, standardized and controlled interviews, intelligence, aptitude, work sample, and tests of personality traits.
4. Job evaluation methods; procedures to be used in the establishment of pay rates and pay methods, upgrading of worker's and training procedures. Related to these are methods for establishing and maintaining worker morale, separation procedures, and related problems.
5. Validation research; procedures for continuous use of the experimental method for validation of the techniques in use, or to be used along with techniques for the supervision, evaluation, and training of the personnel workers who employ these devices.
6. Educational skills; for the continuous education of management and supervisory personnel in the values and limitations of these methods as applied to their specific industry or business.
7. Clinical and adjustment skills; during the past few years there has developed a growing movement in industry toward supplying clinical and psychiatric service to employees. The psychological consultant can perform invaluable service to management in the organization and establishment of counseling and therapeutic clinics for the guidance of employees in vocational problems, marital relations, child guidance, and personality adjustment problems. Thus another *specialty* must be added to the consultant's field of operation.

Labor Relations Functions. Thus far we have been concerned with the psychological specialties called industrial and clinical. Now we move into the realm of social psychology. Until recently the consultant has had little specific responsibility or opportunity for service in this area. However, as the labor movement has gained power and increased in stature and as government has more and more become a third party in the labor-management relationship, the complications of mass human relations have sorely beset industrial management. The power relationships and the consequent emotional and subjective attitudes which have developed on all three sides of the conflict have tended to retard rather than advance the necessary understanding to bring about just and amicable solutions. It is inevitable therefore that the objective, impartial techniques of social psychology and sociology be brought to bear. It is not unfair to say that management was the first to turn to the psychologist. But organized labor, too, is now exploring the contributions which psychological understanding can bring to the controversy.

The great danger for the consultant in this situation is that he lose scientific objectivity. The careful study of the social issues involved and the application of social science toward mutual understanding is rightfully the function of the psychologist. But when he adopts an ideological position or evangelizes a point of view he has destroyed his effectiveness. Critical, scientific impartiality is the cloak of his role as an investigator.

The techniques employed have to date been limited somewhat to measurement of the direction and intensity of attitudes. Much progress has been made in the development of attitude scales and questionnaires for use here. But much remains to be done in the direct application of known psychological research from other fields to the problems in this field. For example, many correlates are to be found in all of the recent war-born motivational studies, such as the work of Dollard in the psychology of fear; Sears, Hovland, et al., in frustration and aggression, and the extensive work of the Army morale studies. A little exploration into the current literature will turn up a great deal of research germaine to the problems of labor relations.

Bio-Mechanics. We now see only the beginnings of an organized body of data being brought together for systematic attacks on the man-machine, man-methods problems in industry. Scattered throughout the literature of industrial and business psychology a vast number of investigations have reported on

specific and unrelated aspects of the problems in bio-mechanics. As these and new researches are organized into a workable body of facts, a whole new specialty is in the making for the psychological consultant. To be sure, the field is not new for we have been working at isolated elements for as long as psychologists have been working in industry. But now, as the result of the war, we begin to see bio-mechanics as something of an integrated or unified area of investigation.

What are bio-mechanics? Simply the study of all the relationships between men and machines. Anyone at all familiar with modern machinery, whether it be war machines or industrial machines, must be impressed by the wondersome devices created and operated by men. There are some who believe that man's creations are far too complicated to be operated by man; that they make demands beyond the limits of the visual, auditory, and motor function of the human organism. In other words, the organism lacks the necessary capacities to operate the machines it creates. There is something to be said for this point of view, but until we have a more accurate knowledge of man's capacities we cannot know where the limitation on machine design should be put. Suffice it to point out that the industrial designer suffers from a serious handicap without the counsel of the psychologist. Machines must be built in terms of the capacities of men and it is just at this point that the psychologist assumes a new importance to industry.

A great reservoir of research results is readily applicable to these problems, but by the same token the unsolved problems are still legion. We can only list here the major areas of investigation. In the field of motor function, such problems as reaction-time, speed, and accuracy of movement, handedness, rhythm, coordination, fatigue, tension, and accident proneness are all germaine. In vision, we need to investigate acuity, stereopsis, illumination, movement, dark adaptation, night vision, color acuity and discrimination, and many other related functions. In audition, problems of noise, sound discrimination, threshold for sounds, vibration, equilibrium, and the like need investigation.

The problems are far too extensive for complete listing, but it will be recognized at once that the methods of psychophysics, time-and-motion study, and many others are directly applicable. Moreover, the extension of these methods and the creation of new techniques are a challenge that psychology cannot afford to ignore.

DISTRIBUTION RESEARCH

By distribution we mean all those processes involved in moving a finished product from the manufacturer to the ultimate consumer. It includes at least five factors, (1) the quality of the product itself, (2) packaging the product, (3) methods of selling, whether direct to the consumer, through wholesalers, type of retail outlets, plus location and size of the market, (4) pricing, and (5) advertising.

During the past 20 years consulting psychologists have played a major role in developing techniques for testing products, packaging, and advertising. They have devised methods for measuring the extent of a market, its location, its composition, and its potential for consuming a given product.

METHODS

The basic research tool, from which many useful methods have evolved, is the random population sampling technique most widely publicized as an instrument for measuring public opinion.

As you have observed from reading this volume, sampling method has taken a variety of forms. All of them are in constant use today. All of them have certain technical weaknesses and limitations. All of them are under continuous experimental examination in the hope of increasing their precision, reliability, and validity. The commonest method in use is the so-called quota sample, but of late greater experimental emphasis has been placed upon the more expensive area, "Precision" sample, developed by the Bureau of the Census. Other forms, called by various names, are modifications of these two methods, e.g., the block sample, developed by the Psychological Corporation and the controlled quota, developed by the Audience Research Committee for the magazines, *Time* and *Life*.

Because they are discussed in detail elsewhere in this volume, it is sufficient for our purpose to enumerate here the most important ways that sampling methods are utilized in distribution research: First and foremost is the one-time or occasional quota survey used to obtain measures of a specific phenomenon, usually market information; second, the use of the quota method for obtaining periodic or continuous trend measures of given phenomena (the best example of the use of this form is the brand barometer of the Psychological Corporation); third, the permanent consumer panel to measure consumer use of products as used by Industrial Surveys and J. Walter Thompson; fourth, the permanent trade

panel for measuring product movement across the retail counter as used by the A. C. Nielsen Company; fifth, the permanent product testing panel, for continuous experimental evaluation of product variations and production control as used by The Federal Advertising Agency, Inc.; sixth, the random production control sample developed by the Seagram Distilling organization; seventh, the telephone coincidental method, for measuring the size of radio audiences, used by C. E. Hooper; eighth, the consumer Jury Radio Audience Roster used by The Pulse, Inc.; and ninth, the Nielsen Radio Index which attaches a continuous recording polygraph to a permanent panel of home radios. There are, of course, others but these are the most important variations of sampling devices.

TYPES OF PROBLEMS

In a way the above listing gives some indication of the purposes to which these instruments are put. But if we are to understand the scope of the consultant's operations in this single area it is necessary to examine the kinds of specific problems he is called upon to investigate.

All marketing problems start with the product itself. If it is an established commodity the manufacturer needs to know with certainty its present status in consumer use. Questions of how it is used, the functions it performs, consumer acceptance and the effects of competitive products, new and old, upon its use and purchase are important. Let us take packaged soap as an example. These products are usually sold for a specific use, for example, heavy-duty washing. But, since there are many active competitors for this market, and the potential volume is limited, it is essential to know how housewives have utilized the product for other purposes, such as dishwashing, fine-fabrics washing, general cleaning, and the like, and whether or not the users have found other satisfactory uses beyond the one for which it was originally intended, since information of this sort provides knowledge of an expanding market.

If the product is a new entrant into a field presumably preempted by existing products, it is essential to test the consumer's reactions to the product, his satisfaction with it and at the same time to obtain a measure of the probable share of the market the product can command when supported by adequate promotion. If, however, we have a new and untried product, it is possible to determine in advance just how it will be received by the consumer, where it should be sold, how it should be priced, and the probable rate at which it will be used. Investigations of this sort tend to minimize the risk formerly borne by the enterprising producer, and at the same time, keep off the market products foreordained to failure.

It seems ridiculous on the face of it, but it is nevertheless true, that consumer products have failed because of poor or improper packaging or labeling. In order to avoid such hazards, methods have been devised for pretesting package designs with the ultimate user. Such questions as package size, shape, color, name of product, type of closure, material to be used, descriptive matter, instructions for use, descriptions of ingredients, and other elements are amenable to fairly accurate predetermination.

Likewise it is possible to establish the location and extent of a market, the characteristics of the market, the most efficient channels of distribution, and any other elements of distribution essential to the successful sale of a given product. This type of investigation was really the first field of application for sampling techniques and the literature is filled with examples of its use.

Many elements enter the considerations in establishing the retail price for any given commodity, among them cost of raw materials, manufacturing, and distribution. But unless it is known just what the consumer will be willing to pay, a product may suffer from a serious handicap in its movement off the shelves. Frequently it is possible through testing to predetermine the optimum price at which a product can expect maximum sales volume. Again such investigation reduces the element of risk in introducing a product to the market.

Finally, the various elements which go to make up a successful advertising and promotional program have been the object of extensive investigation and verification. Perhaps the best way to indicate the scope of these inquiries is to present a list of questions which frequently recur in the day-to-day planning of an advertising program or campaign. These questions usually are raised in the order given below.

1. What is the basic copy approach to be used? What primary claims will be made for the product? What subsidiary claims? What appeals will be dramatized and how?
2. What media are the most efficient channels into the market? Newspaper, magazines, radio, car cards, billboards, others? What is the schedule of insertions or shows?
3. If printed advertising is used, what art or

illustrative techniques should be employed? Should color or black and white be used, photography, painting, line drawings, cartoons, etc.?

4. If radio is used, what type of show will provide the best, most effective, and economical vehicle into the audience to be sought—music, comedy, drama, mystery, news, or what? Should network shows be used? Spot announcements, station breaks, sectional stations, local stations? What about commercials? Should they be dramatized, sung, restrained, humorous, or other? How frequent and how long should they be?
5. Through pretesting, how can we know which campaign, which advertising, which headline, which commercial will attract the most readers or listeners? Which will get the greatest number of complete readers or listeners? Which will motivate the greatest number of people to buy the product?
6. Finally, after the advertising has appeared, how many readers or listeners did the advertising actually attract? How many readers or listeners actually bought the product?

These, and many other related questions, can and have been answered by research. Some of the methods used are still crude and in the formative stage, but continuous experimentation has slowly improved the techniques and more and more emphasis is being placed upon research in this field. In order to advance his science and maintain his position in the field, the consultant, therefore, must be prepared to counsel on and execute such projects and at the same time devise new methods or improve old ones.

PUBLIC RELATIONS RESEARCH

Here a distinction must be drawn if we are to differentiate between the functions of the consulting psychologist and those of the public relations counsel. The public relations counsel is usually the person or organization responsible for the planning and execution of a public relations, publicity program. Its purpose is to influence public opinion and attitudes in the direction of approval for the policies and program of a given company or industry. Generally, the public of the public relations man is broken down in five special publics, namely, employees, stockholders, consumers, the general public, and government. Each of these he hopes to influence in a special way.

The psychologist, however, is generally not concerned with the planning and executing of such a program, although the experts might well be advised to make more frequent use of his counsel. What the consultant does is to devise means for measuring the effects of such programs on the public mind.

Attitude and opinion studies are common practice in all phases of American life. The same methods are employed in measurement of public relations attitude. As is the case of opinions on any public issue, the attitudes of the public toward any company or industry tend to be fluid. Sometimes the causes of change can be related to specific events but frequently it is difficult to isolate the factors which influence changes in trend. It is clearly not enough to take one sample measure and say, "This is how you stand with the public." It is essential to understand that carefully scheduled periodic checks must be made if the position of a company is to be known for any given moment in time. Dr. Henry C. Link, of the Psychological Corporation, was among the first to establish regularly scheduled inquiries to determine the opinion status for a group of leading American industries. His results have been invaluable tools to the management of these companies for guidance in policy formation as it might affect the fortunes of the company with the public. Other consultants have made similar contributions in this field, the importance of which cannot be overestimated.

MANAGEMENT COUNSELING

That the consulting psychologist can, and frequently does, play an important part in management decisions cannot be questioned. This is especially true in those fields mentioned above where definition of function is relatively clear cut. Many occasions, however, are so intangible that they escape definition, where the judgment of the consultant is called upon.

He is frequently invited to join the counsels on such matters as policy planning and formation, organization structure and function, clarification of lines of authority, internal and external relations of individual executives, reports to stockholders, developing a case for materials and labor priorities, and a thousand and one other problems. Many of these situations are far removed from the practice of scientific psychology, while certain of them are definitely psychological in nature.

The point is that this sort of thing is expected of the consulting psychologist. When he is incompetent to render an opinion, he should be frank enough to say so, but to refuse to participate in such problems

would weaken his position for work in his own special bailiwick. Technical competence, so important in the other areas described above, is of little value in these situations. Experience and insight, coupled with sound interpretation of research results, are the essential qualifications for acceptable performance.

To be able to play the game at the management level helps to establish the authority with which the consultant is received in his more familiar role as scientist.

CONCLUSION

This section is an outline of the essential ways in which the consulting psychologist may be called upon to perform in business and industry. Similarly, the specific applications of psychological tools to problems in this field have been indicated. It should be clear that willingness to work in very broad areas is the essential requirement for success provided the consultant has wide experience in business, a sound training in scientific methodology, an armamentarium of technical knowledge and skills, and a healthy curiosity to attack many unique problems, psychological or otherwise.

READING REFERENCES

Blankenship, A. B., *How to Conduct Consumer and Opinion Research*. New York: Harper & Brothers, 1946.

Flory, C. D., and J. E. Janney, "Psychological Services to Business Leaders." *Journal of Consulting Psychology*, 1946, **10**, 115–119.

Wulfeck, W. H., "Psychological Findings and Defense Production." *Personnel*, 1940, **17**, 96–107.

———, "The Role of the Psychologist in Market and Advertising Research." *Journal of Applied Psychology*, 1945, **29**, 95–102.

———, "Social Changes in Relation to Industrial Management." *Journal of Social Psychology*, 1942, **15**, 145–151.

88. GENERAL PRIVATE PRACTICE

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Psychological service has four goals: vocational counselling, educational counselling, social counselling, and personal or emotional counselling—what might be called psychological reeducation or rehabilitation. The last is the chief purpose of the consulting psychologist in private practice, though the other goals are nearly always involved in auxiliary fashion, as will be seen in the following definition: "The aim of all psychological counselling is to release a person's potentialities for growth. The man or woman who comes for individual psychological reeducation first undergoes a study of his abilities, interests, and opportunities: mental, emotional, social, creative. After that, he is helped to become more self-managing, through achieving a greater understanding of himself, as a person in his own right and as a member of a team which includes, not only his family, coworkers, and friends, but the larger community: his town, his nation, and peoples everywhere.

"Independence and self-direction are fostered also through helping the client make more effective use of his energies, mental and physical. Next there is then developed *with* and *for* him a plan to follow which will give scope to whatever technical and personal skills he possesses. A program is set up of work, creative expression, private relationships, social participation, daily routine as will give the client the greatest personal satisfaction and sense of progress.

"Psychological reeducation is started when an individual is convinced and acts on the conviction that the development of every human being is always continuing, that all of us as long as we live can start something afresh, look to the future, contribute to some worthwhile activity. Rehabilitation is regarded

as completed when the client proves that he has again become useful to himself and to the community" (Lawton, 1946).

SUPPLEMENTARY PRACTICE

Educational, vocational, and social counselling are highly developed specialties, and the practitioners of these are usually staff members of institutions or agencies furnishing such specialized services. The vocational counsellor seeks to discover whether a particular individual possesses the skills required in a given occupational field or fields, and what other types of employment might prove suitable for his client. To do this, he uses tests of mental ability, interests, special aptitudes, and personality. He is concerned with discovering the causes and applying the remedies for worker inefficiency, and with the programs of supervision, retraining, and job re-allocation in industry. Vocational counselling is highly important to the individual at a wide variety of ages, but is especially necessary at several critical periods in life: the late 'teens, in the forties, and at sixty-five or over, where, not only a new vocational program often needs to be set up, but also an avocational and recreational one.

The educational counsellor is interested in trying to correct the educational deficiencies of normal individuals. His methods generally go by the name of remedial teaching or tutoring. The educational counsellor is also concerned with helping the handicapped, e.g., the blind, deaf, and spastic, to minimize the effects of their handicaps, and to find compensations for their handicaps by tapping special abilities. The educational counsellor is also interested in developing an educational program for the atypical individual, whether he be physically or mentally handicapped, or whether he deviates in the direction of superior mental ability and unusual aptitudes, i.e., is a gifted person. The educational counsellor, finally, is concerned with problems of educational classification, with classroom procedures and discipline, and with mental hygiene problems of students, teachers, and administrators. The techniques of educational counselling are used by the private practitioner when the personal problems of his client are related to educational procedures, which frequently is true with the boy or girl under twenty.

The specialist in social counselling is concerned with the social causation of crime and delinquency. He seeks to alleviate the effects of a pathological cultural process working on the individual. He tries to do this largely by changing the environment, reducing the pressures, and also by making the individual aware of the relationship between his inner difficulties and their outer causes. Institutional specialists in social therapy find this last difficult, because they are on the staff of a disciplinary institution; but the same work is less difficult for the private practitioner, because his client seeks assistance in his adjustment.

The personal and emotional counsellor is interested in the total adjustment of the person, which may involve the counsellor in problems of vocational, educational, and social adjustment, and usually does, but the emphasis is on establishing effective and satisfactory direction in relation to all of life's problems. This is the approach of the independent practitioner, or consulting psychologist, as he is usually called.

INDEPENDENT PRACTICE

The private practitioner in psychology is a recent development of professional service offered to the public. The number of consulting psychologists, as compared with older professions engaged in private practice, is small but rapidly growing. Previous to the merger of the A.A.A.P. with the A.P.A., the consulting section of the A.A.A.P. had one hundred and fifty-one members, but what proportion of these individuals devoted themselves exclusively to private work was never indicated. The A.P.A. has been reorganized on the basis of divisions of professional interest, and there is one for Consulting Psychology. But its establishment is so recent that no reliable tally of members is available. Judging by empirical observation, there has been a marked increase of independent practitioners since the conclusion of the war, and most of these new practitioners are younger people, many of them recently in a branch of service connected with the war effort.

OFFICE SET-UP

The consulting psychologist uses an office in a professional office building, a residential district, or a hotel. He sometimes combines office and home. This last is particularly true where the private practice is part-time. But the office is simple in arrangement; little test material is visible except in the case of practice with children, where toys and games greet the eye immediately.

CONSULTATION

A psychologist's office is symbolic of his attitude toward the client who faces him across the desk. The psychologist willy-nilly is the receiving station for individuals with all types of disturbances and

deviations of the intellect, emotions, and personality. He might be termed the general practitioner in the field of personality maladjustment. After a suitable examination, he reserves for his practice those people best handled by his own methods, and refers the others to psychotherapeutic specialists most effective with the difficulties indicated. In order that the psychologist adequately discharge his professional duties, his training and later professional relationships must be planned to enable him to make what might be called "differential diagnosis," as well as to carry out specific therapeutic goals, and this program will determine the boundaries of his practice.

NUMBER OF SESSIONS

The number of sessions varies with the nature of the problems, the degree of insight and cooperation on the part of the client, the competence of the practitioner in relationship to the particular difficulty, and the particular individual with this difficulty. The consulting psychologist attempts to work rapidly, and only as deeply as the problem requires. Assuming he has selected individuals whose problems fall within the boundaries of a psychologist's practice, at a rough estimate it generally takes from 8 to 15 hours for the client to arrive at an understanding of his difficulty, and for the practitioner to observe the first signs of a new attitude and altered behavior. It may take another 10 or 20 hours for the client to show he has definitely embarked on a more effective approach to his life situations.

PRACTITIONER AND PRACTICE

SPECIAL TRAINING

There are various general features of education and experience outside the usual curriculum for the doctorate in psychology which the independent practitioner finds essential for his work. There has been much talk of special therapeutic training for psychologists who already have their doctorate and the usual internship clinical training. The Metropolitan New York Association of Applied Psychologists has set up a committee to plan such a Psychological Institute. Until psychologists set up their own therapeutic training organizations, it will be necessary to use already existing therapeutic facilities.

Most important for the consulting psychologist is training similar to that of the psychiatric social worker, which should be in addition to a knowledge of abnormal psychology and experience in clinical psychological techniques gained in his own field. The psychologist needs to know the dynamics of therapy and of transference, not only from books and lectures, but in his own experience. Some day it may be sufficient for certain private practitioners to undergo study and counselling by a recognized psychologist expert in therapeutic aspects. Until such time, it seems highly desirable for new entrants to undergo a successful psychoanalysis. The experience will prove valuable for didactic reasons: the increased understanding it will give him of his clients, even if he feels he does not need it for adequate handling of his own personal problems. However, the aspiring practitioner would be wise not to trust his own judgment in this matter, since a great professional responsibility is at stake. There is always the risk that the practitioner may attribute his own ailments to other people, and year in and year out see only these difficulties in his clients.

This proneness to identification with the client, if present, cannot be counteracted in the private practitioner, as it can in the case of a psychologist connected with an organization. In the latter case, there are staff conferences, cases are written up, findings are reviewed. Any check like this is absent in the case of the private practitioner.

The piece of extracurricular training which comes next in importance concerns the interrelationship of mental and physical disturbances, such as are classified under the head of psychosomatic medicine. Next is a knowledge of vocational guidance and of the technique of occupational analysis. The consulting psychologist must be aware of social resources and share in the training of the sociologist in gaining this knowledge. He must understand the local educational and cultural facilities, the community prejudices, and vocational opportunities.

The psychologist in independent practice is in equal shares a clinician, a therapist, and an educator. His training should combine essential aspects of psychology, education, psychiatry, and sociology. Psychology contributes knowledge and technique of experimentation, objective measures of human behavior, the ability to be easily approachable, to be casual and "everyday" in manner. Psychologists do not hide behind a beard. Psychology shares with education an interest in a normal approach to all people, including the average, "run of the mill" individual. From psychiatry comes the understanding of conflicting emotional forces and the relatively impersonal approach of the practitioner. From the educator come the means of retraining. Finally, the

sociologist gives an understanding of the environmental forces which play upon the individual.

SCOPE OF PRACTICE

The private practitioner's goal is altering attitudes and behavior. While this actually is "therapy," many psychologists in private practice prefer the term "counselling." The two terms are used interchangeably in this presentation, though the writer hopes either "therapy" or "counselling," preferably the latter, will become universally adopted. The therapeutic or counselling function is what distinguishes the independent practitioner's services from other psychological forms. Psychologists in other than educational institutions are limited largely to psychological examination, and many have no part in the interpretation of examination results. Those in schools, in guidance bureaus, or in state hospitals and in somatic disease hospitals, share the responsibility for counselling. While this is of great concern for the entire staff, it is not as much a bread-and-butter matter for a staff psychologist as it is for one in private practice. The consulting psychologist depends for his livelihood on being the producer of definite, visible changes in his client, which the latter and the community generally regard as constructive. He must be, not only a careful scientist, but an authoritative spokesman and representative for psychology in his community. He must also be persuasive in his contacts with his clients, and gain their confidence for his scientific judgment and his ethical standards.

CONTRIBUTION OF TESTING

The gradual emergence of the independent office practitioner in psychology has brought about a revision of the common notion that the psychologist's function is solely to administer tests. The layman has discovered that maladjustments are not corrected merely by psychologists administering tests and interpreting them, or even by making recommendations. The bright nineteen-year-old college boy who has run away from home is not to be dealt with simply by psychometrics. The psychological examination in private practice is subsidiary to the goal of counselling; it furnishes part of the information necessary in the planning of realizable goals.

CLIENTS' DIFFICULTIES

The consulting psychologist deals with personal and emotional difficulties and with their resulting educational and vocational malfunctioning. Prepsychotics and psychotics are referred to psychiatrists; those with severe neuroses to the psychoanalyst. If an orthodox Freudian analysis represents really deep therapy, then the psychologist is not a plumb-the-depths therapist, but only a moderately deep one. Inasmuch as the full-blown neurosis occurs mostly in the adult period, psychological practice with emotional disturbances will be limited roughly from childhood until the early twenties and from forty on. The psychologist handles the problems of infancy, childhood, adolescence, later maturity, and senescence—medical and gross psychiatric disorders always excluded.

CONSULTING PROBLEMS

People come to a consulting psychologist with a great many different problems. But all complaints and symptoms are very much like the spokes of a wheel; they lead to the hub which is a great emotional conflict. The psychologist utilizes whatever device he can for learning quickly and accurately just what are the sources of this conflict. Intelligence test scores may indicate the source as a struggle to keep up socially with superior people. It is not enough to give the conflict a name. One must trace its history and uncover all the contributing incidents, thoughts, and feelings that are associated with it.

THERAPEUTIC ROLE

During the earlier interviews the psychologist is an impartial research worker amassing data. This is not very spectacular either to the client who seeks "pyrotechnical" guidance, or to the practitioner who wishes to adopt the role of seer with or without the resulting possibilities of large financial rewards.

From the point of view of therapy, a certain kindly stupidity at times on the part of the practitioner is quite a technical asset to him. Equally advantageous is it to have a vaguely optimistic but essentially noncommittal attitude about the possibility of a "cure." Promising in the first or even succeeding sessions that a solution to all the client's problems is near at hand is bad technique, apart from its being scientifically inaccurate and professionally unethical, for it will drive away many persons whose last wish in the world is to be "cured" if that means making radical changes in their thinking, feeling, and behaving. Because of the undramatic, plodding, noncommittal nature of the earlier sessions, it is often wise to explain at the very start of the consultations something of what they will be like.

The therapist's role is one of "dynamic passivity" with most subjects. Were he completely passive, he would be merely a listener and administrator of tests and devices. His task is gentle guidance through indirection, but always with a very conscientious and honest attempt to guide in the direction best for the client, not to suit the practitioner's pet theory. The psychologist may have to revise continually his notion of what his client should do, what he can do, what he will do. It is the psychologist's task to provide the techniques by means of which a client can know himself and his problems as they really are, together with the ways in which his difficulties are to be met. It is not the practitioner's function to be a seer who lifts up the client as if he were a toy train, fits him to the right track, and then sees to it that every time he falls off he is put back again. Whatever other objections there may be to such a method, the chief drawback is that it gives the subject no opportunity to develop his own skill in living and in making decisions, and it removes from him the responsibility for what he is and what he does. The psychologist does not make the decisions for his client; he tries by therapeutic techniques to remove fears, conflicts, and painful memories which may be paralyzing his client's ability to make the decisions he should and might make of his own accord. Every one of us is continually making decisions; even persons in conflict do. The latter have decided to remain stalled, to shuttle back and forth from one half-hearted move to another. The psychologist's job is to help the client carry through on one decision and accept the consequences.

AN ILLUSTRATION

Mr. B., a man in his fifties, after having been married for twenty-three years, felt he could go on no longer with his marriage. He wanted to know only one thing, so he said: Should he stay or should he leave? He would accept the decision of the psychologist. But the psychologist refused to express any opinion, since he felt that his client mainly sought justification for a departure and was in conflict about leaving. He was told that a psychologist might be able to reveal to him why he married the woman in the first place, and what forces now prompted and opposed his leaving. Years before Mr. B. had seen another practitioner, who had intervened in the solution of his problems. Hence it was not easy for him to accept the notion of making his own decisions. Mrs. B. came for consultation shortly after her husband had started his sessions. She too wanted only one thing: "How can I make my husband return home?" Mrs. B. also found it very difficult to understand that a psychologist did not tell people what to do, but simply made it possible for them to find out what they ought to do by providing the means by which evasions and self-deceptions can be cleared away, or the means by which certain realities could be best handled.

READJUSTMENT

When the client arrives at an understanding of the psychological factors involved in his problem, the violence of the conflict within him is reduced mainly through a process of reliving and reinterpretation of crucial experiences, of reevaluating feelings and behavior from the new point of view gained through this knowledge. The reduction is aided through changes in the outside world, such as getting a job, changing school plans, going to summer camp, and transferring from an old age home to one's own household in an old-age colony, according to age and status.

PSYCHOLOGICAL RECORDS

Psychological records kept over a period of several years, reveal most clearly the nature of psychological practice. See table (pages 597–598) for abstracts from such records, including the problems of consultation (Column I), the number of consultations (Column II), the examination procedures (Column III), who terminated the consultations (Column IV), in which *P* stands for Practitioner and *C* for client, to whom referred (Column V) if referred to a specialist, and the psychological outcome (Column VI) or results achieved by therapy. Some of the clients whose records appear here were referred elsewhere at the end of a few consultations. The majority were carried through to successful outcomes.

EXAMINATION FOR THERAPY

The psychological examination of private practice is focused on the essential goal of therapy.

PRELIMINARY INTERVIEW

The patient generally tells his story in his own way for the first few interviews and at his own pace. This is especially necessary with older men and women. Interpretations are few, and questions are asked only to keep things moving. If the subject is a young person, it may be the mother or, on rare occasions, the father who will talk uninterruptedly for one or more sessions.

Abstracts from Psychological Records

I Problems of Consultation	II Number of Consultations	III Examination Procedures	IV Terminated by whom	V Referred to whom	VI Psychological Outcome
1). A middle-aged school teacher is sure she cannot read and is afraid her stammering will cause the loss of her job, though she stammers only outside of school.	20	Life history, personality study, tests of intelligence, and reading ability.	P*		Stuttering lessened, fear diminished, relationships improved with individuals important to the patient.
2). A young man supposedly in love with a nurse eight years his senior wants to know whether or not the age difference will make marriage inadvisable.	12	Personality study, life history.	P		Client confident that he can now make his own decisions.
3). A young man seeks help for stuttering, which he feels interferes with employment and with possible marriage.	6	Life history, and personality study.	C†		Slight increase in insight; job obtained. Otherwise no improvement.
4). A young married woman has a lover who is going to marry her sister in order to be near her. She wants to know how to save her sister from the fate of an unhappy marriage.	3	Interview.	C		No improvement.
5). A young girl in her twenties wants to leave home, get a job, and live with her boy friend. She quarrels incessantly with her mother, but is overwhelmed with fear at the prospect of going away	23	Life history, personality study. Three interviews with mother.	P		Obtained a position, engaged to be married, quarreling with mother much diminished, looking forward to leaving home without fear.
6). Parents with a feeble-minded child seek to know what possibilities in the way of education there might be for him.	3	One interview with both parents. Subject given test of mental abilities.	P	Director of classes for mentally deficient.	Some educational guidance to parents.
7). A feeble-minded boy is having great difficulty with a younger and brighter brother.	15	Examination of mental abilities, achievement in school subjects, and personality study. Three consultations were with mother, one with father, and one with older brother.	P		Parents and school authorities advised as to intellectual capabilities of client, most suitable school placement, as well as to future vocational possibilities. Relationship with brother improved.
8). A young school teacher who is overwhelmed by her sense of inadequacy professionally wishes to confess this to her superiors and resign.	4	Personality study, examination of mental abilities.	P	Psychoanalyst.	Client was shown that a problem existed, and that help was possible and desirable. Even though the psychoanalytical treatment was incomplete and only partially successful, the young woman has returned to a teaching job, and is satisfied with her performance there.

*Practitioner †Client

Abstracts from Psychological Records (continued)

I Problems of Consultation	II Number of Consultations	III Examination Procedures	IV Terminated by whom	V Referred to whom	VI Psychological Outcome
9). A divorced man asks that his son of twelve be treated to undo the effect of a neurotic mother.	18	Twelve consultations with father in discussions of current problems; some personality study. Six consultations with son including personality study.	P		Emotional release for both. Reduced difficulties in relationship.
10). A boy of twelve has great difficulty with his classmates and his teachers; much friction with parents.	45	Twelve consultations with boy, including tests of intelligence, school achievement, aptitudes, and personality study. Fifteen consultations with mother and eighteen with father, including life history and personality study.	P		Relationships with teachers and classmates improved, though school achievement still mediocre. This client was followed over a period of years. Relationship with parents much improved.
11). A young married woman haunted by a murder she witnessed as a child is on the verge of a psychosis.	2	Interview with client, husband, and family physician.	P	Psychiatrist.	Importance of prompt treatment shown.
12). A woman on the verge of a psychosis and carrying her fourth child, asks the psychologist whether she ought to bring it to term or not.	2	Interview.	P	Psychiatric clinic.	Urgent need for treatment shown.
13). A high school lad wants to know if he is material for a college scholarship.	6	Test of intelligence, scholastic achievement, aptitudes, study of interests, brief personality study.	P		Subject felt he now had an adequate basis for making a decision.
14). A sixty-three-year-old woman seeks an opinion as to her value in the vocational market.	10	Tests of mental ability, study of interests, life history, and personality study.	P		Client relieved to know her vocational value, though at the time she could not find a job.
15). An eighty-year-old man bowled over by a recent catastrophic love affair, seeks self-understanding. This client was dealt with, not only as a person seeking psychological assistance, but, upon his own solicitation, as a subject for old-age research.	45	Tests of mental ability, scholastic achievement, life history, personality study, psychosomatic study. In this study, two physicians from New York Hospital, and Rorschach examiner, and two psychologists collaborated. Number of consultations covers nonmedical study only.	P		Subject felt he obtained the understanding of himself that he sought. The emotional effects of the love affair were much attenuated.

EXAMINATION TECHNIQUES

After the broad outlines of the problem have been drawn in the preliminary interviews, the psychologist decides on the exploratory devices to be used to secure information of the psychological factors causing the problem. By this time the complaints have been presented in every possible combination and light. Each client's narrative is a variation on a few themes. What the practitioner seeks are the fundamental causes of the difficulty. He no longer

permits extended discourse, or eloquent flights of fancy or diatribe. He interrupts and asks questions intended to elicit exact information on particular points.

TESTS

Objective testing devices are used for this purpose. The whole array of psychological tests and projective devices may be drawn upon as the problem is defined in the first interviews. Personality inventories, the Pressey X-O Series, the Kent-Rosanoff Free Association Test, the Rorschach examination, the Murray Thematic Appreciation Test, find frequent use because of their stimulation of emotional associations. The tests of mental abilities offer an opportunity to study, not only the mind in action but the total personality, and all objective exploratory measures, whether of mental abilities or emotional attitudes, have an indirect therapeutic result. Incomplete sentences are an extremely useful device to elicit specific information. Special questionnaires may be used for obtaining a detailed sexual history, a work history, etc. Practically every psychologist in private practice uses certain devices of his own construction. The writer has a special series of "Deep Incomplete Sentences" and a personality inventory, containing 475 items, which stresses situations likely to be productive of disturbance and not merely the symptoms of conflict and maladjustment. The following items are typical:

1. Did your parents get a separation or divorce while you were still living at home?
2. Was your mother seriously ill when you were a child?
3. Have your parents ever struck each other?
4. Have your parents ever found fault with your personal appearance?
5. Has your father ever talked or acted as if he thought himself a failure?
6. Have you ever lived in an institution or with people not your real parents, even though your parents were alive?
7. Have you ever run away from home?
8. Had you, for a long period, been unable to play, run, walk, or climb like the average child?
9. In games, when teams were selected, were you ever the last to be chosen?

Entirely apart from the significance of a numerical score or letter rating, such an inventory is valuable as a spring board for the further questioning.

The writer uses a Sealed Envelope Test in which the subject is presented with an imaginary envelope, and, before he can open it, he must decide whether he will say "yes" or "no" to a question which it contains. He then must guess the nature of this question, the person from whom it came, explain whether the information he gives ever really happened and why he answered as he did. All responses are timed. Again, he is presented with a number of similar imaginary envelopes, but this time he is told that they come from his father, mother, sibling, sweetheart, policeman, future mate, future child, and many others. Procedure is as before. This test supplies a method of study of motivations and locates sources of emotional difficulties.

Standard tests are used for the measurement of intelligence and achievement in the occupational and vocational fields, according to the needs for this information as indicated in the preliminary interviews.

CHECK INTERVIEW

When the examination period is over, the psychologist goes back over the accumulated material, obtaining the reactions of the client to all of the information given. As one subject exclaimed: "You certainly can't miss anything when you go over my life that way with a fine-tooth comb." In this the psychologist refrains from asking leading questions. He should not say, for example, "Don't you think that your father's beating you did this to you?" Rather it should be phrased, "When you look back upon the incident of your father's beating you, how do you feel about it and what thoughts come to your mind?" Or, "You said your father beat you. Would you please go into that a little more now?" During this interview, the psychologist often will comment about the sources of the difficulty or possible solutions. He can learn something of his client's thoughts and feelings by the way he reacts to these comments.

THERAPY

The results of tests and the statements of the practitioner: his questions, emphases, pauses, smiles, raised eyebrows—all the art, science, and histrionics of psychotherapy—begin to trace an outline of the problem for the client to grasp. Every subject represents a hypothesis to the psychologist. He has worked out in his own mind the reasons for the difficulties and the contribution which the client can make to their resolution. However, he does not force this interpretation on himself or on the subject,

or distort material to fit a theory. In technically correct therapy, the subject has been benefited to a considerable degree by the reliving and reinterpretation of various experiences and relationships in his life, even if the psychologist has wrong theories about the problem as a whole, and even if the client does not pursue what the practitioner feels is the ideal solution.

Often the practitioner is unable to aid fully many clients unless he sees every member of the family. The client, especially a young person, may be the one who shows the effect of emotional and social pressures, but the original source of pressure is something outside: mother, father, brother, sister, or a grown-up beyond the family circle. It may be a contemporary who is exacerbating some earlier wound. With old persons, it may be a child who, having reversed the role in his relationship with his parents, is causing the immediate difficulty. Frequently, several members of a family must be included in the therapy one after the other, when the family grouping is at fault. Therapy with a boy of eight continued in one instance with the mother, who had more serious difficulties than the boy, and concluded with the father, whose problems were even more complicated than those of the mother. Quite by accident, the father's sister, a middle-aged woman, also came for assistance, and this involved her mother, a woman of seventy-five, who was the chief original source of "psychic infection" of the whole family. Several cousins of the father also came independently. The writer has maintained contact with most of the persons in the family over a period of eighteen years, and it has afforded a remarkable opportunity for studying interpersonal relationships in a small social unit.

ADJUSTMENTS

Therapy ends as soon as there is definite evidence that the forces making up the original conflict are no longer equal, and that the individual is able to go in one direction or another under his own steam. When this point is reached, the difficulties bringing the client for consultation have begun to weaken and disappear. The therapist now seeks for definite proof in the laboratory of everyday life that the subject can apply his new understanding, and, until this evidence is obtained, therapy is not terminated.

If by adjustment one means a complete disappearance of the old problem or difficulty, people are seldom one hundred per cent adjusted by any kind of psychotherapy. But suppose we grant that we mean simply improvement and that in some instances all that people do is to make the ascent from worse to bad. The majority of persons who undergo full-length therapy by a psychological practitioner may be said ultimately to improve as much as forty or sixty per cent in their ability to handle problems they meet on the job, within the family, or in their relationships with the opposite sex.

AFTER-ADJUSTMENT

When therapy is over, adjustment is a process that is only in its early stages. This process continues with increasing momentum for the succeeding few years and, in fact, continues for the rest of the subject's life. Adjustment is a way of organizing one's experiences, an attitude towards problems and people. A person who has built all his experiences around fear and anxiety, or about symbols, day-dreams, and fantastic wishes, gains the reality attitude through successful therapy. Adjustment represents a new approach to him in handling his emotional relationships with people.

When the practitioner says goodbye to his client, he does not see someone miraculously changed. He sees a student about to enroll in a new school. This student differs from his former client in that he has the will and the ability to be both student and teacher of himself in the future—to be his own psychologist.

TREATMENT OF PSYCHOLOGICAL AGING

This section is concerned with general private practice, which ordinarily means a practice that contains a representative sampling of all the problems with which private psychologists ordinarily deal. Since possessors of problems also are possessors of chronological ages, and since there is a certain relationship between problems and ages, we might also think of a general private practice in terms of the period of life to which the client belongs.

The practitioner is fortunate, who is able to gain a broad professional experience both in terms of categories of problems and of chronological ages. The author started his practice among boys and girls of high school and college age, from about thirteen to twenty-one. Because it was an older adult who so often played a great part in causing the problem in a young person, a sharp shift was made to individuals of forty and fifty, and then to those from sixty to eighty-five. Today, his practice, while mainly among men and women in the later

decades of life, still has a few individuals from nineteen on through all the succeeding age levels. It is a very challenging and chastening experience, and presents one with a remarkable vista of the course of human development and fruition, to have in the same working day and sitting in the same chair across the desk: a boy of nineteen, a woman of twenty-seven, another woman of forty-four, a man of sixty-two, a woman of seventy-five, a man of eighty-two, a woman of eighty-five. Certain observations gained through this experience with a wide variety of ages may be of interest here.

The techniques of clinical psychology with respect to the diagnosis and remedial or therapeutic work are essentially the same, regardless of the age of the client. A few problems are found among the old not seen at any other age, but with most of the problems that turn up at earlier ages are also present. Even some of the so-called "special" problems turn out to be very analogous in dynamics to those found in younger people: the need for love and attention, though the love-getting and attention-getting devices vary. It is in the different social attitudes and opportunities, in the complex mixture of personal, vocational, avocational, and medical-psychiatric problems that practice with older persons is different.

The schedule of tests and other procedures need to be varied with every older client, as they do with persons of younger ages, in terms of his purpose in coming, his real problem, his mental equipment, particularly his sensory difficulties, his degree of insight and of cooperation. The attitude of the family, this time the children and mate, are just as important with older persons as with younger ones, if any plan is to be carried out successfully. The tests used should be the best available for the purpose; this may or may not mean the latest ones. They should be scored quantitatively as well as qualitatively, and then compared wherever possible with the achievement of the client's contemporaries; they always can be compared with the achievement of young people, and through indices of mental deterioration or mental efficiency, compared with the probable early achievement of the client, which may or may not be his present potential achievement.

There is a gradual decline in ability with age; there are also social, emotional, and creative declines. The rate and severity of emotional disturbance goes up with age: prepsychotic and psychotic states enter more often into the picture, as do life-long severe neuroses, which may be incurable or only partly so. The "manic" individual presents testing difficulties, but the depressed individual is an even greater challenge. With very deep depressions, we enter the psychiatric domain, and the psychologist must make referrals of these elsewhere, as he should do with psychotics generally. Mild and reactive or situational depressions are so common in older persons that the writer wonders whether this condition should not be considered the norm. Much can be done with such mildly depressed individuals through remedial psychological techniques.

Psychologists working with the older adult need to be expert in the measurement of mental deterioration; they also need to develop and use standards for measuring the other types of declines. They will then find such great variations in mental and emotional status in older individuals that they will have to set aside preconceived notions and deal with each client, as they do with younger ones, in terms of his current functioning. They will have to consider the possibility of reversing such losses and ineffective approaches to situations as may exist, and of ways to utilize the abilities now available or which will be available after the counselling and therapy are successfully concluded.

In general, older persons do not accept test situations easily. They have been away from school work and examinations for decades: they may never have experienced them. Even when they are familiar with them, older clients are filled with doubts about their own abilities. The older adult, unlike the child, because he is free to consult a psychologist or stop coming whenever he so decides, also feels free to question and refuse routine procedures. The entire testing program frequently must be abbreviated; test periods must be broken up because of the fatigue element; clients need a great deal of patience and encouragement.

We tend to become more idiosyncratic with the years, and individual differences are more marked. The client above sixty years of age occasionally makes too quick a transference, but generally he is much slower to "transfer" than he would have been in younger years. That is, he is sometimes more suggestible than he had been in earlier life, but he is generally more resistant. The practitioner cannot pursue exclusively a passive, nondirective technique with all old people, nor a guiding, exhortatory procedure. Laying down the law, with a "Do as I say; here are the rules, programs, goals for you" technique may achieve a temporary startling result with an oversuggestible person, but the same method will not succeed with a resistant type. The exponent

of a complete passive and nondirective approach will have difficulty with the suggestible individual who patiently awaits guidance from an all-powerful and all-knowing practitioner. Older people often need far more "motivating" than do younger ones; and more "follow-up." Hence work with older persons calls for a flexible approach, using diagnostic and therapeutic techniques easily adaptable to the individual client.

Aging merely means changes with age. It is not a synonym for losses, since some aging changes represent improvements of function. Many of the changes with age we regard as losses are not inevitably due to physiological changes but to environmental pressures, and to insults and vicissitudes suffered by the individual. Hence, "psychological aging" in the sense of loss: mental and emotional rigidity, withdrawal from people and activity, mild depressions, etc., can be found in individuals of every age, and some of the most marked cases of "psychological aging" ever seen were in "teen-agers."

Some day all psychologists in their training period and in their practice will deal with problems found over the whole period of human development, from the cradle to the grave. When that happens, persons with problems will be considered primarily in terms of their personal resources for appropriate, effective living, and only secondarily in terms of chronological age.

CONTRIBUTION TO SOCIETY

The independent practitioner in psychology sees large numbers of individuals everywhere doing others psychic injury, individuals functioning far below capacity because they are torn by a never-ending struggle with themselves, their loved ones, and their business associates. He sees men and women hurting themselves and others, because they do not see people as they really are, but as distorted and symbolic projections, created by childhood fears, childhood daydreams, and longings. If an emotionally tortured and crippled person is vocationally placed where he can meet and influence large numbers of individuals, much damage can be done.

ILLUSTRATION

Mrs. C. is a teacher with a tremendous sense of inadequacy. Married and divorced three times, she carries out in the classroom the motto, "Do unto others as has been done unto you." Her sadism has expressed itself chiefly in a pedagogical maiming of a small number of those students especially vulnerable to her insults and punishments. Such a source of infection can damage about twenty thousand pupils.

Utopia is not around the corner the moment psychology starts helping people. But suppose everybody who needed it received thorough psychological help? That certainly would increase the extent of personal happiness in the world, as well as bring about smoother and more efficient relationships between people.

PROFESSIONAL RELATIONS

Professional relationships of the independent practitioner develop as his practice is extended. Referring of clients of one specialist to another and to specialists of other professions is recognized as best practice. The future will see a great increase in these procedures, as there are more and more psychologists specializing in very young children, the aged, the mentally retarded, and the vocationally or educationally maladjusted, and as the specialists in other professions recognize the worth of these practices.

The practitioner has as his colleagues, first his fellow psychologists, then the physician, psychiatrist, psychoanalyst, human engineer, vocational counsellor, teacher, and personnel worker. He knows the personalities in these areas from meeting with them at professional conventions. Much can be gained among workers in the psychotherapeutic disciplines by cross-fertilization. The American Orthopsychiatric Association offers an excellent example of how workers in related fields can teach each other. Psychologists ought also to participate in meetings of pediatricians, gerontologists (gerontology: the study of old age), neurologists, and psychoanalysts.

READING REFERENCES

Hepner, H. W., *Psychology Applied to Life and Work*. New York: Prentice-Hall, Inc., 1941.

Hildreth, G., "Psychology as a Career." *Journal of Consulting Psychology*, 1937, **1**, 25–28.

Lawton, George, *Aging Successfully*. New York: Columbia University Press, 1946.

———, *Counseling the Older Person*. New York: Columbia University Press, to be published.

———, "Does Psychology Deserve Its Popularity?" *Journal of Adult Education*, 1940, **12**, 138–141.

——— (ed.), *New Goals for Old Age*. New York: Columbia University Press, 1943.

———, "Psychological Guidance for Older Persons," in E. V. Cowdry, *Problems of Aging* (2nd ed.). Baltimore: The Williams & Wilkins Company, 1942.

Louttit, C. M., *Clinical Psychology of Children's Behavior Problems* (2nd ed.). New York: Harper & Brothers, 1947.

Mitchell, David, "The Clinical Psychologist." *Journal of Abnormal Psychology*, 1919, **14**, 325–332.

———, "Private Practice in Clinical Psychology," in R. A. Brotemarkle (ed.), *Studies in Honor of Lightner Witmer*. Philadelphia: Press of the University of Pennsylvania, 1931.

Porteus, S. D.; M. H. Sicha; and C. J. Herrick, *The Practice of Clinical Psychology*. New York: American Book Company, 1941, Chap. 1, "The Role of the Clinical Psychologist."

Rogers, C. R., *Counseling and Psychotherapy; Newer Concepts in Practice*. Boston: Houghton Mifflin Company, 1942.

Symonds, P. M., "Problems Falling within the Scope of Psychological Counseling." *Journal of Applied Psychology*, 1937, **21**, 66–74.

Travis, L. E., and D. W. Baruch, *Personal Problems of Everyday Life*. New York: Appleton-Century-Crofts, Inc., 1941, Chap. 14, "Who's the Doctor?"

Westburgh, E. M., *Introduction to Clinical Psychology*. Philadelphia: The Blakiston Company, 1937, Chap. 11, "Some Fundamental Concepts of Clinical Psychology."

89. CONSULTING CHILD PSYCHOLOGIST

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The private consultant in psychological difficulties of children is primarily concerned with developmental, educational, and emotional adjustment problems of childhood and adolescence. His responsibility is differentiated in several respects from that of the psychologist handling similar problems in an agency, school, or institution clinic. He deals directly with and is directly responsible to the parent. In a standard child guidance clinic, the psychologist usually reports his findings to social workers, psychiatrists, or the school principal, who are in direct contact with the parent, and limits his activity to an analysis of the child's abilities, achievement, special aptitudes or disabilities, and interests; the social worker secures the significant personal home and school background; and the psychiatrist investigates the child's emotional attitudes and adjustments. The private consultant explores all of these areas and integrates all relevant data in arriving at an understanding of the problem and the indicated remedial procedures. With notable exceptions, the therapeutic responsibility of the psychologist in a clinic team is confined to remedial work with the child in academic disabilities. The private consultant assumes responsibility for all therapy.

TRAINING BACKGROUND

Because of the responsibilities he assumes, the minimum qualifications of the independent consultant are those required for a Fellow in the Clinical or Consulting Divisions of the American Psychological Association. He must necessarily have a broader foundation in training and experience than the institutional specialist in child problems. Essential experience includes a period of work involving clinical association with social workers, psychiatrists, and pediatricians. He must be oriented in related professional fields, and must have demonstrated his capacity to integrate their contributions with his own, if he is to assume responsibility for the direction of the whole child and be able to discriminate the remediable difficulties of normal children from those requiring medical treatment.

PROFESSIONAL VIEWPOINT

The psychologist's work with children is based upon generalizations which have evolved from child study and clinical experience. Fundamental among these is the recognition that childhood behavior is symptomatic of the conditions of its development; the

child's habits and attitudes are environmentally determined. The conditioning environment includes those personalities with which he comes in dynamic relationship. The most significant environmental factors are those characteristics of the parents which determine how they accept their parental roles and discharge their parental responsibilities. The child's adjustment difficulties reflect unsatisfied basic needs —for emotional security and affection, for recognition and a sense of worth, for freedom to develop as an individual within defined controls. The study of both the child and the conditioning environment are necessary for an understanding of the difficulty. For the successful outcome of therapy the child's capacity to participate must be utilized.

LAYMAN POINT OF VIEW

Marked divergencies exist between the thinking of the psychologist and the layman as to the significance of behavior symptoms. Behavior of greatest concern to the child psychologist is frequently unrecognized or overlooked by the layman. Behavior of greatest concern to the layman is often regarded by the psychologist as constructive effort on the part of the child to combat misguided adult demands. A gap between the psychologist's and teacher's point of view concerning the symptoms of child maladjustment was dramatically reflected in the results of Wickman's study of children's behavior and teachers' attitudes (1928). Teachers' reports of types and numbers of children's behavior problems were widely variant. This fact suggested that the problems listed were a reflection of the teachers' sensitivity to specific kinds of behavior. Further analysis of the behavior problems when rated as to their significance by the teachers provided conclusive evidence that those of major concern to the teachers were the ones that frustrated their immediate purposes in maintaining classroom discipline or achieving academic progress or which violated their personal standards of good conduct. The problems of least concern to the teachers included those of major significance for future adjustment, e.g., shyness, oversensitiveness, fearfulness, and suspiciousness. Stogdill's study (1933) revealed similar trends in parents who were more concerned over breaches of discipline and taboos than over indications of emotional maladjustments.

Educators, parents, judges, and agency workers are becoming better informed as to the significant factors in personality development as seen by the psychologist. Increasingly they recognize along with the psychologist a need to go back of the behavior to its determinants. They are developing appreciation that the actively difficult child has a better chance of adjusting his difficulties than the outwardly conforming but inwardly disturbed child. In referring a child for psychological examination they are more aware that the needed corrective measures may apply to the social milieu as well as to the child. In every group of laymen, however, are individuals who are concerned only with the nonconforming child and who ascribe his behavior to hereditary predispositions or to perverse tendencies which should have severe treatment—views which have been scientifically discredited.

Evidence of the continued gap between educational practice and constructive psychological practice is found in Anderson's study (1944) of the techniques used by teachers in responding to twenty-three problem situations. Both the teachers' and their students' reports indicated that the teachers' techniques in dealing with these problem situations would either defeat their own purposes by making the problem worse, or were unrelated to the problem.

REASONS FOR REFERRAL

Children presenting similar behavior may be referred for study for widely varying reasons. In the case of two sullen defiant adolescent boys, one parent came for reinforcement of his own authority, another from a candid recognition that he had bungled and needed help. Likewise they may be referred for any kind of behavior which meets with the disapproval of the parent. A six-year-old girl was referred by her mother for stealing. She had taken a coin from her own savings bank without permission. An eight-year-old boy was referred by his teacher as a sex pervert. He had lifted up the skirts of a little girl on the playground.

The problem as referred may have little similarity to the problem as analyzed. Usually a parent or teacher has a specific complaint. The psychological analysis to the contrary may reveal a ramification of both causes and symptoms which can be dealt with only in relation to each other. The problem may be the behavior itself or it may be the condemnation of the child because of the behavior.

The kinds of problems accepted for study vary with the individual psychologist. The practice of the writer is to accept clients when a preliminary interview indicates that the problems reflect: (1) the need and desire for parental education, (2) the need for educational adjustment or educational

guidance of the child, and (3) social and emotional adjustment difficulties associated with child-parent relationships and educational maladjustments.

PSYCHOLOGICAL EXAMINATION

The study of any behavior or adjustment problem begins with the study of the situation in which the behavior has been pronounced inadequate or undesirable.

HISTORY

The first step is the securing of a social history through interviews with the parents who may be seen separately or jointly. When they present differing points of view, both must be taken into account. A joint interview reveals how they handle their differences of opinion. Information as to how the child's problem is reflected in his school and social adjustment is secured through interviews with the child's teachers, his playground supervisor, or camp counselor.

The desired kinds and amounts of information vary according to the problem and the situation. A standard history outline provides the background for the interviews. The most fruitful interviews are those in which the parent or informant is made to feel that he is giving a spontaneous account of his view of the behavior, with the interviewer asking for elaboration of particular points or specific instances. The psychologist can guide the interview without formalizing it and can fill in the gaps later by direct questions. How the parent tells what he tells and what he leaves untold are valuable clues to the psychologist.

Desirable information includes an account of the following: (1) a description of the problem behavior; (2) the child's previous development in all its aspects—physical, emotional, intellectual and social; (3) the child's adjustment in his family, school, and social groups; and (4) the personalities, relationships, methods of discipline and control, standards and expectations of parents, relatives, or other adults concerned with the child. The result of a recent medical examination with evidence as to any sensory defects is essential.

The psychologist gleans a series of clues from the above information, namely, (1) what the relation is between the problem as referred and as it appears in the light of the social history; (2) what the major causative factors of the problem appear to be; and (3) what factors need and are susceptible to modification. These clues constitute hypotheses which will be discarded, modified, or confirmed throughout the examination.

THE CHILD HIMSELF

The comprehensive and intimate study of the child has for its purpose answering the following questions: (1) What is the child's native ability? (2) Does he have special talents or defects? (3) Is his school achievement satisfactory for his level of ability? (4) Are school requirements adjusted to his ability? (5) Does he have difficulties with specific school subjects? (6) What is his response to success, failure, praise, encouragement, and difficulty of the task? (7) How adequate is he to the intellectual and social demands of the situation? (8) What are his attitudes toward himself, e.g., is he self-confident, self-depreciatory, indifferent, or casual? (9) What efforts does he make to gain status with the examiner, e.g., by boasting, clowning, telling jokes, or exaggerated effort? (10) How does he respond to the examiner, e.g., is he fearful, suspicious, shy, uncommunicative, relaxed, resistant, or sullen? (11) What mannerisms of speech or behavior are observed, e.g., is there stuttering, lisping, sluggishness, hyperactivity, tics, or grimaces? (12) What are his attitudes toward his parents, siblings, school, teacher, and associates? (13) In what respects does he feel thwarted or frustrated, unjustly treated, or censured? (14) What are his attitudes toward the condemned behavior? (15) What are his conflicts, fears, worries, special interests, and desires?

TESTING

The first questions above with respect to the child's abilities and achievement are answered as far as possible through the appropriate standardized tests (Louttit, 1936; Hildreth, 1939; Buros, 1940; Rapaport, 1944, 1946). How many and which tests are used depends upon the age of the child and the nature of the problem. The appropriate testing schedule is determined by practical considerations. The pressure of work and the urgency of problems in clinics and schools often limit the scope of the testing schedule. Schools, for example, often expect the disposition of a problem after an hour's examination when several hours or more of study are required. In private practice, it is usually possible to carry out the optimum testing schedule indicated as desirable for a client. The psychologist dealing directly with parents informs them in advance of the approximate time essential for the study, which then proceeds on the basis of their acceptance of

this. The following records illustrate the testing program in private practice.

SUBJECT A. Joey, aged five, who was excluded from nursery school because he was thought to be mentally deficient, was given the Revised Stanford-Binet Scale, the Kuhlmann Tests of Mental Development, those tests of the Arthur Performance Scale adapted to his age, the Betts Tests of Visual Sensation and Perception.

SUBJECT B. Buddy, aged seven, a severe behavior problem, whose mother wanted help in finding a suitable boarding school, was given the Stanford-Binet Intelligence Test, the Arthur Performance Scale, the Betts Tests of Visual Sensation and Perception, the Gray Oral Reading and the Detroit Word Recognition Tests.

SUBJECT C. Marie, aged ten, had not learned to read and was placed in the slowest moving section of the third grade. She was given the following tests: the Stanford-Binet Intelligence Test, the Arthur Performance Scale, the Monroe Diagnostic Reading Tests, the Ayres Spelling, Gray Oral Reading, Stanford Achievement Reading Comprehension and Arithmetic Computation, and handedness and eyedness tests.

SUBJECT D. Bob, aged eleven, a talented boy whose father was concerned because he was unhappy and asocial, who was doing satisfactory school work except in arithmetic, was given the Stanford-Binet Intelligence Test, the Seashore Measures of Musical Talent, the Meier-Seashore Art Judgment Test, the Stenquist Mechanical Assembling Test, the Stanford Achievement Arithmetic Computation and Arithmetic Reasoning tests, and the Rorschach Personality Test.

SUBJECT E. George, aged sixteen, who had failed in three subjects in second year high school and who refused to return to the school, was given the American Council on Education Psychological Examination, Inglis Test of English Vocabulary, Stenquist Mechanical Assembling Test, O'Rourke Mechanical Apititude Test, Revised Minnesota Paper Form Board Test, Meier-Seashore Art Judgment Test, Minnesota Vocational Test for Clerical Workers, Seashore Measures of Musical Talent, Iowa Silent Reading Test, Tressler English Minimum Essentials Test, Hotz First Year Algebra Scale, Stanford Achievement Arithmetic Computation Test, Brainard Specific Interest Inventory, Bernreuter Personality Inventory, and the Rorschach Personality Test.

The above records show (1) that the number of tests administered to one client may vary from two to a dozen or more, (2) that they always include a general intelligence and a performance test, (3) that educational and achievement tests are included when relevant to the problem, (4) that mental and physiological readiness tests are important in the study of young children, and (5) that at later ages the testing schedule becomes more diversified and includes measures of special aptitudes and objective measures of interest and personality, the latter including both adjustment inventories and projective techniques for personality study. The tests listed are selections for particular clients and represent only a fraction of those available.

ESTABLISHING RAPPORT

Before introducing tests the psychologist satisfies himself that he has reassured the fearful child, disarmed the suspicious, and encouraged the timid. Only after he has a favorable acceptance of himself and the tests by the child can he proceed. This process is accelerated with younger children by means of a preliminary period of free play with a variety of interesting materials. An informal discussion of interests and hobbies is effective with adolescents. Often, however, a straightforward, mutual recognition that the child has brought a problem with which the psychologist hopes to help him serves best.

OBSERVATION OF BEHAVIOR

The distinctive contribution of the testing schedule is the objective determination of the child's abilities and accomplishments. But the test situation provides also an opportunity for observations of the child's attitudes and characteristic responses, for example, how much success and approval are necessary to reassure the fearful child or to satisfy the needs of the aggressive thwarted child. The spontaneous comments of the child provide clues to his conflicts and often to those which he has not articulated.

AN ILLUSTRATION. Diffident six-year-old John, after a few instances of success, became arrogantly boastful saying repeatedly, "I'm a bright boy. I can do everything." After a few minutes he began tugging vigorously at the examiner's sleeve pulling her toward the door saying, "Come tell Aunt Jessie I'm a bright boy." This boy had been placed for adoption, but the prospective foster mother was on the point of rejecting him. She thought he was unaware of the fact. The problems he presented were symptoms of the anxiety aroused by his awareness of her rejection.

SUPPLEMENTARY STUDY

When the test situation is handled with awareness of its dynamic potentialities it serves the therapeutic purpose of increasing the child's confidence and security. He is reassured by its impersonal nature; by his continued acceptance in case of either success or failure; by the emphasis on his successes; by being made to feel interesting and important. Ordinarily the child responds readily to further interest in him and his affairs. A transition is readily made to informal discussion or play. The younger child is encouraged to return to the play materials. The psychologist may participate or make observations through a one-way screen. The child's spontaneous play, drawing, dramatizing, and fantasy provide valuable insights into his conflicts and needs.

Failure of the child to respond freely may necessitate continued study in order to arrive at an understanding of the difficulty. Such failure to respond provides a clue as to the seriousness of the maladjustment, and a basis for predicting the nature and extent of therapy. More resistance may be met in the adolescent boy or girl. Attitudes of suspicion, resentment, fears of being inferior, and feelings of insecurity or inadequacy which have developed in relation to parents or other adults are likely to be transferred to the consultant. In the process of dealing with such attitudes, examination and therapy are inseparable. When the young person has reached the point where he can accept the consultant and admit his fears and worries and face his resentments and anxieties, definite progress has been made in the direction of an adjustment of his problem.

PSYCHOLOGICAL THERAPY

When the material from all sources has been integrated, the resulting conclusions and interpretations are discussed with the parents, and a plan of therapy is agreed upon. The nature and success of the therapy vary according to the problem, the age of the child, the level at which the parents or child are able to cooperate, the skill and orientation of the consultant, and the economic situation of the parents.

PARENT SERVICE

Reeducation of the parents is an integral part of therapy, and particularly with problems of the young child. It may consist of interpreting to parents elementary principles of habit training, of supervising the carrying out of concrete plans for handling specific problems, of helping parents to understand the child's fundamental needs, or of readjusting the parents' standards for judging the child's behavior and accomplishment.

SUBJECT A's PARENTS. Joey's parents, in their efforts to compensate to him for retarded motor development, were still feeding him and dressing him at the age of six. They had not recognized that he needed more rather than less of the usual amount of motor and manipulative experiences to minimize his handicap. General immaturity and dependency were reflected in infantile speech, inability to work or play with the group, hyperactivity, and excitability. Joey was excluded from the school as subnormal. Our study showed him to have at least average mental capacity. Therapy included reassurance of the parents, helping them to institute and carry out different methods of handling Joey, referring them to an oculist to rule out a visual defect, helping them to find another school, interpreting the child's needs to the school and making suggestions for meeting them, examining the older brother, and encouraging the father to play a more active role in the family group. Subsequent interviews with the mother indicated encouraging progress.

Therapy with parents frequently takes the direction of helping them to develop intellectual and emotional insight into certain of their own personal traits and attitudes and how these have distorted their judgment or influenced their treatment of the child.

SUBJECT C's PARENTS. Marie's father had always suffered from feelings of inadequacy. He was overly self-protective and inclined to be dogmatic and to be hypercritical of others. Because he was dissatisfied with his own social adjustment and career, he was determined that his daughter's should be different. When she failed to make satisfactory school progress, he increased her problem by unwise coaching at home and by making himself obnoxious at school. Marie was becoming sullen, resentful, and irritable. It was possible to help him understand how his own problems had complicated instead of helped the solution of Marie's.

The types of therapy indicated above result in improved adjustment in a considerable proportion of clients. Sometimes the improvement is temporary, indicating that the basic problems have not been affected. However, many cases which appear to be serious upon slight acquaintance respond to such procedures.

Parents whose problems are deep-seated or severe are not likely to profit by either of these two approaches. Unless they are receptive to intensive ther-

apy, other ways must be found to help the child. Aided by the suggestions from the psychologist, an understanding teacher or interested relative, an agency or recreational worker may do much to compensate for the inadequacies of the parents. A continuing relationship with the psychologist is often an essential part of therapy. An encouraging trend in child therapy is the increasing clinical evidence of the child's capacity to participate in therapy and to profit therefrom.

SUBJECT B's PARENTS. Buddy's parents were too engrossed in conflicts related to their own personal and marital difficulties to be sensitive to and understanding of his needs. Each blamed the other for Buddy's problems and was unable to accept his own responsibility for them. Although both professed concern about the child, unconscious resistances prevented both from playing or wanting to play a constructive parental role. Each recognized the other's need for therapy but not his own. Attempts at reeducation would have been abortive.

EDUCATIONAL THERAPY

The consultant's services include remedial work in academic difficulties, boarding school or camp placement, and educational and vocational guidance.

SUBJECT C's PROBLEM. Marie was a superior child with an I.Q. of 117 on both Binet and performance tests, but with a reading disability. Hence, remedial work in reading was an important part of therapy with her. Three sessions weekly with the psychologist for a period of five weeks resulted in an average gain on five reading tests of 1.2 grades. Increased confidence and enjoyment and a hopeful attitude toward school and life also resulted. A personal visit to the school to interpret Marie's problems and enlist its cooperation resulted in changed handling. When seen a year later Marie was a happy, self-assured child doing school work compatible with her ability.

SUBJECT B's PROBLEM. Buddy's symptoms included destructiveness, setting fires, cruelty to animals and children, and temper tantrums. Finding the right school was crucial in providing for his needs in view of the parents' problems. It was also difficult. He was placed in a small school where he was the special care of a generous affectionate housemother with a rare understanding of children. His teacher, housemother, and the school director all worked in close cooperation with the psychologist. At the end of a year he had found that it was more pleasurable to conform than to resist. He had learned to respond emotionally in his behavior to affectionate treatment. He had found satisfying substitute expression for his destructiveness in several kinds of approved activity. He was considered a lovable, imaginative child.

SOCIAL AND PERSONAL THERAPY

Therapy must sometimes include interpreting the parent and his problems to the child and helping him to make an adjustment to them. The successful outcome of therapy in such instances depends on the extent to which the young person can be helped to understand the parents' treatment of him or relationship with him as the reflection of the parents' own conflicts. Along with this he must be helped to find adequate substitutes for the security, affection, or support which he lacks in his parental relationships.

SUBJECT D's PROBLEM. Bob was an exceptionally superior and musically talented boy who was painfully insecure and solitary, which was the result of a succession of broken homes, nursemaids, and boarding school changes. To help him to understand that his mother had not been deliberately neglectful but had been too absorbed by her own unhappy marriages to give him the affection he needed, and to help him to face and accept his keen desire for social participation and to facilitate his getting this, were important aspects of therapy. An exceptionally happy outcome was achieved through a small summer day camp where the director, acting on the psychologist's recommendations, helped Bob to gain distinction in several areas and to acquire athletic skills sufficient for easy participation in the ensuing school year. The day camp permitted his spending the summer in his newly established home. This was desirable because the mother's remarriage was a happy one, the stepfather was sincerely interested in the boy's welfare, and both parents were working actively with the psychologist on their own problems as well as his.

Objective self-appraisal on the basis of aptitude and achievement tests and help in effecting an educational and vocational plan in accordance with these are effective in the adjustment of many adolescent difficulties.

SUBJECT E's PROBLEM. School failure was not George's only problem. He was irritable, fault-finding, and self-centered. He was disinterested in school work and did not know how to study. His father was desperate at the prospect of his older son becoming a ne'er-do-well like the brother he had supported for years. His teachers had told his parents that he was not college material. His father had used punishment as a means of improving George's school

work and had deprived him of his chief pleasures: his work bench, his camera, and his radio which he had built himself.

George had scholastic aptitude adequate for successful high school graduation and for college training which would develop his special aptitudes. He showed unusual superiority in mechanical and related aptitudes. Neither his aptitudes nor his interests had had any part in determining his curriculum. The indication was that appropriate changes in the latter would result in better school work, greater satisfaction from it, and reflect favorably on his general adjustment.

A boarding school, away from the rejecting father, the oversolicitous mother, and the more successful younger brother, which provides technical training and encourages mechanical and scientific interests was recommended. Six months later the parents reported receiving "very favorable reports from his teachers" and were "very grateful for what you have done for the boy."

SOCIAL VALUE

A not inconsiderable part of the consultant's reward in such work is in seeing the fruition of his effort in improved adjustment in the child and in improved relations in the family; and in knowing that community mental health is being furthered by correcting difficulties in their early stages, thus preventing later maladjustments both personal and social. The need for tremendously increased provision for such work with emphasis on prevention has been dramatically demonstrated in experiences with service men and women in World War II. This need has been recognized through the founding of the National Advisory Health Council which is sponsoring appropriations for training of specialists in treatment of emotional disturbances in children and for financing community mental health clinics.

A significant commentary on the need for such work is the frequency with which parents comment on their difficulties in having found it. Difficulties mentioned are: their dependence on chance information as to reputable consultants; their lack of background in distinguishing between the qualified consultant and the pseudopsychologist; their lack of satisfaction from the impersonal, hurried, fragmentary handling in certain hospital out-patient clinics; and their having been told their problems could only be attacked through intensive prolonged psychoanalysis. Steiner (1945) has made a constructive contribution toward helping the layman discriminate between qualified and unqualified consultants. State laws, such as those passed in Connecticut (1945) and Virginia (1946), and pending in New York State (1949), certifying psychologists, provide further protection of the public. As to the merits of short-time therapy versus prolonged psychoanalysis, one group of analysts (Alexander et al., 1946) have themselves arrived at the conclusion that this depends upon the problem and the orientation of the therapist.

READING REFERENCES

Allen, F. H., *Psychotherapy with Children.* New York: W. W. Norton & Company, Inc., 1942.

Arthur, G. A., *Tutoring as Therapy.* New York: The Commonwealth Fund, 1946.

Blanchard, P., "Interpreting Psychological Data to Parents." *Journal of Consulting Psychology,* 1940, **4,** 120–123.

Roland, M. C., "The Psychological Examination as a Beginning in Therapy." *Journal of Consulting Psychology,* 1945, **9,** 171–177.

Weill, Blanche C., *Through Children's Eyes.* New York: The Island Workshop Press, Co-op, Inc., 1940.

90. THE REHABILITATION OF THE AGED

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The mental rehabilitation of the old is a relatively new procedure in clinical psychology. The belief on which this work is founded is that in a democracy every adult should make, in one way or another, his individual contribution to community progress in return for the benefits he has received from it.

Today, society is so organized that there is no place where the old can function fully. The result is that they have been pushed out of life and are forced to live in the past. Consequently, their effort is to reproduce a past that has become obsolete. Of necessity they grow more and more out of step with the present, that they do not understand, and the future of which they are fearful, and thus act as an obstructive influence on the rest of society.

The Old Age Counselling Center of San Francisco is a pioneer effort to make practical a psychological-social education that will enable the client to create for himself intelligent participation in group living, which means increased happiness for himself and enlarged benefit to his community.

The aim of old age counselling is to remove the frustrations that society has heretofore imposed on the aging person, to help him release those potentialities latent in every human being, so that he may again play his part in life rather than remain a parasite to the end of his days.

To accomplish this end two social views need to be overthrown: first, that mental deterioration is the inevitable concomitant of aging, which has been proved by science to be fallacious, and second, that any human being, at any age, can find happiness in hopeless uselessness. The normal mind can learn at any age, and happiness is to be found in continued mental growth and useful participation according to the individual's physical strength and mental capacity.

Today old-age counselling, with its aim of saving old people from unhappiness, discontent, and despair, has passed the point of experiment. It has a well developed technique, the results of which have been tested at every point to prove their value for practical living.

Because there is but one clinic in the United States devoted exclusively to the rehabilitation of the aged, the Old Age Counselling Center of San Francisco established in 1929, the clinical practice of this Center is described here.

CLINICAL PRACTICE

Briefly stated, the rehabilitation of every client begins with a subjective study of the individual by the interviewer. The four or five visits of an hour each undeviatingly carried through with each client individually are spaced a week apart, with sustained "home work" between visits.

The subjective method—introspection—used to secure the information necessary for a diagnosis of the client's problems is essential for, though older people tend to view life introspectively, their introspection is in general unprofitable. They must be aided to introspect scientifically, for they are not able, unaided, to gain a factual picture of themselves in their past and present life. Their emotional interests and imagination color, direct, and determine their observation, making it impossible for them to distinguish between fact and belief. Without a process of introspection guiding them to factual understanding, the clients are unable to develop objective thinking of any value.

Having substituted sound analysis, based on an objective view of himself, for false introspection, based on faulty observation, the client is prepared to cease rationalizing and embark on another kind of thinking—objective—without which he will not be able to achieve satisfactory relations with his fellows or to understand the external life of the community in work or other participation. For this he must be educated or reeducated in understanding what manner of person he is, how he became what he is, what

society sees in him, and what role he can best play in it.

FIRST VISIT; PRELIMINARY STUDY OF THE PERSONALITY

The first step in the subjective study of the client is to observe his general appearance, because such observation gives an idea of how he will impress others in any group he may attempt to enter. After his name, age and residence are noted, he is asked what brought him to the Old Age Counselling Center. As a rule, clients know quite definitely for what purpose they have come, and lose no time in stating their problems.

All physical disabilities, whether temporary or permanent, are given full consideration. No medical, neurological, or psychiatric advice is ever given in the Center. A complete report on the client's physical condition must be gained before any program for his future functioning can be made. On the other hand, the client is never dismissed from the Center during medical treatment, for it is one of the guiding principles of the work that body and mind function together, and the removal of anxieties, worries, and apprehensions may be of value in improving his physical condition.

This first visit is divided into three periods: first, the old person is asked to give his life history, beginning with his earliest memories and relating consecutively and in detail events up to the present time. This narrative reveals his mental and physical reaction pattern, that is, his habitual, characteristic manner of thinking, feeling, and acting—the personality derived from his physical makeup, his physical and social heredity, his response to the particular experiences he has encountered since childhood in his particular environment. No formal questionnaire is used, for in his unhampered narrative abundant information is obtained regarding his motivations, his social attitudes, his view of himself with relation to his environment, and his specific problems. The reaction-pattern is prophetic. It has become automatic and if sustained the results it evokes can be forecast.

USE OF MENTAL TESTS

The second period of this first visit is used to give a brief mental test of ten questions, eight of which are taken from the Stanford Revision of the Binet-Simon Intelligence Tests at the eight-to-ten-year-old level. The other two are Fernald's Ethics Tests and an adaptation of a German test to evaluate the degree of suggestibility present. These tests are not scored, for the purpose is to learn qualitatively how much mental deterioration has taken place in such functioning as attention, memory, visual recall, concentration, imagination, suggestibility, social values, method of attack, and perseverance in the solution of simple problems, imagination, and manual dexterity.

The final period of this visit is employed to analyze with the client the results obtained through observation, the Life History and reaction-pattern, and the mental test results. Before any psychotherapy is prescribed, the endeavor is made to have the client realize how imperative it is for him to banish all physical and mental resistance and adopt the "will-to-do" attitude, for the aim of the psychotherapy given him is practical and its purpose is to increase his happiness and efficiency. Having acquired a realistic view of his strengths and weaknesses he is now given a chart, on which are the maximum of three setting-up exercises for rehabilitation which he is to fill in daily and bring with him on the following visit, a week hence. He is also given a Daily Program which is marked off in days and for one week, and asked to record on it each morning, and bring it with him for discussion on his second visit.

SECOND VISIT: DAILY PROGRAM AND DISTRIBUTION OF TIME

After the first chart has been discussed with the client regarding its consistent use and resulting value, the Daily Program is considered. This record has a threefold value. (1) It shows whether the client is leading a purposeful life or merely marking time. (2) It demonstrates where his values lie, by recording the amount of time he spends on various activities and whether his day is suitably divided between periods of work, rest, and recreation. The aim here is to modify his daily functioning so that each day's activities are suited to his individual needs under the conditions of living in which he finds himself. Mental stimulation, adequate rest periods, and such recreation as enriches his thinking motivate him to seek broader understanding of the world he lives in. Such alterations are now made for his daily functioning that, with possibly minor changes, as conditions of living alter, may remain as a permanent blueprint for a well-balanced day.

The sources of mental stimulation are many, once the habit of observation has been developed. Not only reading, listening to and discussing the radio news programs and lectures, but even shopping, taking walks, and other commonplace experiences will add stimulation. Here, as elsewhere, what a man

finds depends on what he brings with him. Only when the client has been conditioned in observation and thinking is he fit to join, to create, or to lead such discussion groups as the Center encourages. Old people who join groups without such preparation are likely to be critically intolerant of new ideas and conditions, to assert themselves loudly and thoughtlessly, turning discussion into angry dispute.

If the client is gainfully employed in industry, two special points should be considered in connection with his daily program. (1) Is he really earning his salary? (2) On what does his advancement depend? Industry needs both his hands and his brain. Is he using the former only, or is he developing the latter during periods of physical rest?

Before he leaves the Center he is assured that change in himself is possible and profitable and that he will be helped to retain those activities that work towards his self-development and social usefulness and to put forth effort to overcome such weaknesses as rob him of the depression of his highest capacities.

THIRD VISIT: THE BUDGET

The purpose of the third visit is to discuss the client's income and its distribution. The client is now asked to fill out the Budget Chart on which is listed general expenditures for the necessaries of life and also such items as gifts, amusement, services, savings, etc. The proportional amounts used for given purposes indicate clearly on which the client places emphasis.

Old people as a class do not handle money well. Generally they are uninformed regarding the constant change in investments, as well as what modern life offers them in the way of security through health and life insurance and annuities. Far too often it is found that pitiful self-sacrifice is being made by them through hoarding of money to insure the financial future of children or grandchildren. Sometimes this hoarding is sustained as a pivot to power, or to gain the attention and consideration a "man of means" is accorded.

The study of the budget also offers opportunity of dealing with the complaining attitude of many old persons who are financially dependent on their families, where the beneficiaries are too self-centered or too uninformed to guess at the sacrifice made by their children for their comfort. Beyond this several pertinent topics may be discussed, such as the value of a balanced budget, the influence of poverty and its lessons, and the obligations of wealth.

If the individual is to budget his income satisfactorily, he must work out a well-formulated plan for his future activity which includes the goal toward which he is striving. Therefore, before his next visit he is asked to consider what goals he has chosen for his immediate and future life.

FOURTH VISIT: NEAR AND FAR GOALS

The goal of any individual is the most important point in his growth. The motivation to action exerted by it is so powerful that nothing else can be substituted for it. A worthy goal of self-development and useful service, daily striven for, is the most valuable influence in personal and community life. Such goals are not ideals to be dreamed about, but objectives to be worked toward. Lack of goal or purpose is common among the old, largely because society's aim has been to teach them resignation. It is the major cause of their physical and mental apathy, their dissatisfaction with modern life, their stagnant emotions, and their lack of enthusiasm. Yet it has been demonstrated that frustrations, resulting from the belief that life is nearly over for them, is more common than complete absence of objective. The goalless person looks upon life as a series of fortuitous happenings over which he has no control, a smattering and confusion of activities which lead through a maze of compromises that end in futility. The self-chosen goal of any person reveals his emotional preference, his social concepts, and his appraisement of himself in relation to his environment.

Goals are as varied as the individuals who select them. Those of old people are usually narrow in scope, limited to the welfare of one or two persons. Such goals stamp their owners as mentally immature, however long they may have lived. They still hold the mentally adolescent attitude of solving their personal problems only. The education required for such persons is to teach them their obligation and privilege to become, not only good individuals, but good citizens through participation in those causes that make for society's progress. For this new knowledge is essential, enlarged emotional life must develop, latent capacities must be brought to the surface to act as a challenge to mental potentialities.

The selection of the goal is the open door to rehabilitation and becomes the conditioning process in making the choice of a goal effective. Irrespective of a client's choice it is then necessary to consider the practical aspects of cost in time, money, and effort he will be required to put forth to attain his objective and the will to counter the discouragement

offered by family and friends who believe that he is too old to reclaim life.

FIFTH VISIT: COMMUNITY LIFE

Up to this point the client has been dealt with from a purely subjective point of view. His attention has been directed inward for the realistic understanding of himself as he was, is, and hopes to become. He now knows the motivation to thinking, feeling, and acting that has in the past been influencing the core of his personality.

On the fifth, and generally his final visit, he is introduced to a world outside himself. It is now time to consider his participation in community life, but not until he understands the value of such participation. Old people, in general, have a limited view of current world affairs. They must learn to think objectively, not only of their own desires, but also the needs, welfare, and progress of society as a whole. The client's tendency will be to consider first what part he will play in a given project, rather than its significance to society. He will learn that participation must be *earned* and that cooperation requires new learning.

PSYCHOTHERAPY

Appropriate physical and mental exercises, adapted to individual capacity, are begun gradually and sustained daily until strength has supplanted weakness. Methods of work to increase efficiency without strain and the form of suitable activity are likewise taught. All modification of physical or mental habits must be gradual and effected without overexertion.

Implicit in all psychotherapy for the old is education in the modern social, industrial, and economic problems of the nation. Without this they become more and more out of harmony with the present and fail to gain a realistic view of the world in which they live.

A summarization of the work of the Old Age Counselling Center for fourteen years shows the following: 87 per cent of all cases have been fully rehabilitated. No case is considered closed until two years after service, for the aim has been to remake the client's life in an improved and sustained pattern, rather than to apply such stimulation as motivates for a short time and allows the individual to return to a life of inertia. Another 9 per cent showed improvement in personal happiness, but the physical and mental deterioration was too great to undertake further treatment. And 4 per cent were failures and dismissed from the Center because they were unwilling to put forth any effort toward personal development. It is significant that these old persons were either long-time residents in institutions or beneficiaries of old-age pensions. Of the total number of clients 57 per cent were women and 43 per cent men; 58 per cent were persons who were financially secure, while 42 per cent needed to increase their earnings. The age range was from 50 to 92 years and the average number of visits to the Center was 5.4 per person. During 1942, 19 men and women were removed from the public relief rolls, 22 relinquished their county old-age pensions (4 temporarily), and 23 became independent of financial aid which had been received from relatives.

VALUE TO SOCIETY

From the point of view of law and democracy, there is no right given to any group to set a limit, by means of counted years alone, to the individual's supporting himself and continuing his responsible part as a citizen.

If the old are allowed to remain at their present general level of functioning they impede progress, their personal lives are unhappy, hopeless, and wasteful. To become and remain happy, secure, and efficient participators in the world's progress, many, if not most, will require individual rehabilitation before they can achieve that dynamic "livingness" which is a benefit both to the individual and the community.

The results of the liberation of the spirit of old age from the shackles generally imposed on it in our times are even more important than the economic or financial results. Old people, whether rich or poor, can reclaim life and through renewed self-esteem, courage, and reeducation, put the treasures of their experience at the service of their fellow men and thus become assets rather than liabilities to the world.

The rehabilitation of the old is a most important work, for it not only gives aid to the clients themselves, but also promotes and develops ideas that will affect every young person from childhood on. It helps society toward a fuller and truer democracy than it can possibly attain with a great and steadily increasing number of its older people repressed and depressed, as they are today.

READING REFERENCES

DeFord, Miriam, *The Old Worker Comes Back*. San Francisco: Old Age Counselling Center.

DeGruchy, Clare, *Creative Old Age*. San Francisco: Old Age Counselling Center, 1946.

Martin, L. J., *A Handbook for Old Age Counsellors.* San Francisco: Old Age Counselling Center, 1944.

———, and Clare deGruchy, *The Foundation Planks of the Old Age Center.* San Francisco: Old Age Counselling Center.

——— and ———, *Salvaging Old Age.* New York: The Macmillan Company, 1930.

——— and ———, *Sweeping the Cobwebs.* New York: The Macmillan Company, 1933.

——— and ———, *Salvaging Old Age in Civilian Defense.* San Francisco: Old Age Counselling Center.

91. PSYCHIATRISTS AND PSYCHOLOGISTS IN PRIVATE PRACTICE

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In the center of all that concerns psychiatrists and psychologists in practice is the problem of personality, its deviations, and disturbances. Symptoms of personality disturbances are today apparent in all areas of living. The effect of wartime pressures has been markedly to increase the amount, if not the kind, of maladjustments. Concurrently there has been an increased awareness of the need for, as well as the possibilities of, psychiatry and psychology. As a consequence, the demand for help with personality problems of almost every degree of seriousness and at every age level is large. Larger still is the need and scarce is the supply of people in a position to better the situation. The Veterans Administration through its rehabilitation, counseling, and mental hygiene divisions is trying to serve the needs of returned veterans. A serious handicap in organizing and maintaining such services has been the lack of available professionally trained or experienced personnel—psychiatrists, clinical psychologists, and psychiatric social workers. What of the many people other than veterans who have problems? Many from the lower economic brackets take their problems to social agencies, and these agencies, too, are frequently inadequately staffed. What of people who can afford to pay? Where do they take their problems?

WHERE PEOPLE TAKE THEIR TROUBLES

Where uninformed people take their problems; what these people want, need, and get; and who serves them and how, are related problems popularly presented by Steiner (1945). In her description of services offered to the gullible, Steiner in the role of patient, sponsor, or correspondent reports a fair sampling of the array of "talent" in the psychological "underworld." Her sessions with these "expert" services are vividly and interestingly described. To check on the kind of people who come she hung out a shingle with the knowledge of the state mental hygiene society and let her name be listed in the Chicago telephone directory. With literary license she reports that "everyone and anyone came." For the most part, she reports, they were young people who were loaded down with ambitions they could not fulfill, unmarried people in their thirties or forties who were having disturbing love affairs, or those who were disturbed because they had no love affairs, mentally retarded individuals who could not make the grade either socially or vocationally, and people who had troubles with in-laws or relatives. Some drug addicts, shoplifters, and students on the verge of suicide also came. Most of them were shopping around and had already visited one of the several "psychologists" listed in the telephone directory. Mail-order business she also received. These people need direction and guidance in the selection of more legitimate as well as adequate help than is furnished by "agencies" and persons described by Steiner. In this task psychiatrists and psychologists through participation in community mental hygiene activities are in a position to help.

What of more informed people who can afford to pay? What kind of people come to the office of a psychologist or a psychiatrist in private practice? What kind of problems do they come with? Who refers them? To make possible a tangible and concrete consideration of such questions we plan

in this section to study and analyze the case load reported by a psychiatrist in private practice and compare with it the clientele of a psychological practice for the same period. By such a comparative analysis an attempt will be made to throw light on such questions as the extent to which psychiatrists and psychologists in private practice do or are in a position to cooperate in what should be an interdependent field. Before doing so it might be well, because of the recent origin of both psychiatry and psychology in practice, to take an historical look to see what the interests of both were at the outset, what each is well equipped to deal with, what each is not well equipped to do, and from a study of trends to obtain a more enlightened direction for evaluating the practice of both professions and explore their possibilities for more interdependent cooperation.

THE PRACTICE OF PSYCHIATRY

Practically all the important things in psychiatry as we know it today have either happened or culminated during the past half-century. White (1936) reports that when he first entered the field less than fifty years ago he found psychiatry in a sickly condition and, for the larger part, almost nonexistent. As a medical specialty psychiatry hardly existed, and the average hospital psychiatrist was little, if any, removed in his understanding of mental cases from the ward attendant. All therapy was one of negation. Restraint of one form or another was the order of the day. Psychopathology as we think of it today was practically nonexistent. Psychology of that day was not of the slightest assistance.

Since that time psychiatry has won a place for itself in dealing with mental diseases and, as a medical specialty, has gained increasing acceptance on the part of doctors from other fields. Certain psychiatrists have cooperated both in practice and in research and also at meetings with psychologists, psychiatric social workers, sociologists, and educators, and from that interrelationship developed an interest in, as well as a knowledge of, problems less extreme than mental disease. War experience threw personnel in allied fields together oftener. As a consequence, an increasing number of psychiatrists have manifested an interest in preventive work, in neurotics, and in personality difficulties of relatively normal people.

THE PRACTICE OF PSYCHOLOGY

Like psychiatry, psychology as a systematic, organized activity is of recent origin. Its beginnings usually are traced back to the founding of Wundt's laboratory. Early psychological laboratories were equipped with shiny apparatus, resembling somewhat a medieval torture chamber. In the presence of all this complicated machinery, no one doubted that the soul eventually would be compelled to deliver its deepest secrets to the psychologists (Muller-Freienfels, 1935). But the history of psychology, as the history of psychiatry, perhaps more so, is a record of disappointment and mistakes as well as accomplishments. Unlike psychoanalysis, with Freud as its originator and presiding genius, psychology emerged, not by flashes of genius, but by gradual elimination of the errors and wrong hypotheses of its early experimenters. Psychology was gaining in validity and reliability of evaluating its results as well as expanding its field of interest from sensory to animal, educational, and social before it moved into the clinical field.

In his early days of psychiatric practice White found the contribution of psychology sterile as far as helping people was concerned. Less than fifty years ago the state of affairs could be well described as an interesting human paradox: psychologists interested in acquiring scientific knowledge about human nature had no interest in applying it and psychiatrists in mental disease institutions who were in a position to help people because of their medical training knew little about human nature or human relations and resisted change. Motivated by such developments as the mental hygiene movement, experimental studies of personality from Morton Prince onward, growth of interest in child development, interests in remedial education emerging out of Witmer's clinic, and interest in delinquency and child therapy, as expressed in later child guidance clinics patterned after the Healy-Bronner model, psychology manifested a desire to widen its horizon in content and relationships. Psychology's applied interests started with normal children and adults and broadened to include deviations in the development of both.

In a mental hygiene unit it seems clear to one who has had experience in the field and has seen results in various clinics having different organizations that the time has arrived for real interdependent relations based on a division of labor in line with training, experience, and ability to be applied in the organization and distribution of work. From that point of view the advisable procedure in mental hygiene work would be to have cases distributed for major handling, therapeutic as well as diagnostic,

to the psychiatric social worker, the psychiatrist, or the psychologist, depending on the nature of the case. If it happens to have dominantly a medical emphasis, the psychiatrist should have that particular case, acting as leader in the discussion and consideration of it. If the case turns out to be predominantly educational in nature, the psychologist should act as leader in the discussion and treatment of it. And if the case turns out to be predominantly social in nature, a psychologist with anthropological or sociological training, the clinical sociologist, or the psychiatric social worker with sociological as well as psychiatric training should take the lead. Such honest cooperation and mutual self-respect are appearing with increasing frequency in organizations serving mental hygiene purposes. What is the state of affairs in private practice?

PSYCHIATRY IN PRIVATE PRACTICE TODAY

Neglected in professional literature is the story of psychiatry in private practice. Until 1945 a tangible picture of private practice was not available. Fortunately for our present purpose Ginsburg (1946) has recently reported his case load for five months from January to May of 1946 in what he describes as an averagely active practice devoted largely to intensive psychoanalytic therapy and consultative practice. During this period he gave from six to nine patients intensive treatment and saw 96 new patients. In terms of working diagnoses these are summarized in Table 1.

A glance at the foregoing list of working diagnoses of Ginsburg's 96 patients reveals certain interesting facts about the nature of psychiatric practice and its opportunities for service through direct treatment as well as contact with relatives, physicians, and community sources. It should be remembered that during this period six to nine persons treated intensively took up the largest portion of time. Of the 96 patients, 30, or 28 per cent, are classified as psychotic, 35, or 36 per cent, as psychoneurotic, 6, or 6.5 per cent, as psychosomatic, 5, or 5.5 per cent, as alcoholic, and 20 or 21 per cent, as seemingly relatively more normal. Ginsburg reports an increase in what he calls preclinical problems. Illustrative are marital tensions not yet serious but threatening difficulties, business problems reflecting neurotic difficulties, and school failure recognized early and not explicable on the basis of poor intelligence. For doing his work in private practice, Ginsburg perceives his role as that of friend as well as healer, practitioner as well as scientist, requiring an ability to tread lightly and yet deal forthrightly with complicated human problems.

Such is the human material we find in the private practice of a representative modern psychiatrist. How does it compare with the individuals who find their way into the office of a psychologist in private practice?

Table 1: Classification of Problems in Psychiatric Practice

Psychoses	
Schizophrenia	13
Manic Depressive Psychoses	
Depressed	4
Manic	1
Reactive Depression	3
Involutional Melancholia	1
Paranoia	3
Senile Psychosis	2
Post-partum psychoses	3
Psychoneuroses	
Anxiety neurosis	7
Obsessional neurosis	7
Anxiety Hysteria	5
Conversion Hysteria	5
Mixed Neurosis	5
"Character Neurosis"	3
Neurotic Depressions	3
Psychosomatic Problems	
"Anorexia Nervosa"	2
Anginal Pains	1
Hypertension	1
Healed pulmonary tuberculosis with continuing symptoms	1
Ulcerative Colitis	1
Consultations concerning members of the family	8
Marital problems	6
Alcoholism	5
School problems	5
Consulations concerning employability of person	1

Table 2: Classification of Problems in Psychological Practice

Interpersonal Relations	
Child-family	32
Marital	24
Separated	3
Marital casualties	3
Occupational Problems	
Business worries and anxieties	4
Occupational adjustment	6
Old age	1
Psychosomatic	
Skin	1
Diabetic	2
Adolescent Conflict	3
Personal-Emotional	
Unmarried women	5
Home outgrowing	4
Sex	10
Emotional-occupational-educational	3
Depressed feelings	1
Marital incompatibility	7
Old age	1
Counseling for adoption	1
Fear and inferiority	6
Neurotic Individuals	
Phobic	1
Compulsive	1
Anxiety neurosis	1

CLINICAL PSYCHOLOGY IN PRIVATE PRACTICE

To make possible a fairly valid comparison of individuals who find their way into the office of a psychologist in practice with the foregoing results, we have analyzed the clientele at the Psychological Service Center in St. Louis for a parallel period used for indicating the nature of private psychiatric practice. The time is from January to May of 1946. Comparable in time spent on intensive cases treated by the psychiatrist are consulting services to three industrial organizations. The number of individuals who appeared in the office during this period was 120 instead of 96. These for working purposes may be classified as indicated in Table 2.

Space limitations prohibit a consideration of the classifications used or the illustration of them by the use of case study material. Only the classifications which are not self-explanatory, even with applied intelligence but without additional information are discussed or illustrated.

Under Interpersonal Relations are included all cases, no matter how referred, which developed into a study and treatment of two or more people. A glance at the foregoing table indicates that more than half of the problems are of that nature. One half of all the Interpersonal Relations are called Child-Family problems, when usually at least three people are involved. These most often included a child referred by the parents, and the situation and the emotional atmosphere of the home played an important role. In such instances both parents as well as the child referred were seen individually as well as together. Often the family was seen as a unit toward the end of treatment. Also included were other situational problems which are found in any large city. To illustrate: a father of two children was living in the home of a sister-in-law. His wife had been dead for seven years and he and the two children were living in the home of the wife's sister. Here, though he felt like a prisoner as did the children, he felt guilty even at the thought of leaving. The children were examined shortly after the father referred them but the plan for family reconstruction started with the reeducation of the father. Only a year later were the children directly dealt with psychologically. At the time of the examination the older daughter had a "running-away" attitude, was loaded with anxiety tensions, denied a tendency to worry, and manifested a strong negativistic attitude. She resolved problems by evasion, disinterest, and pseudo-indifference. The younger boy proved to be bright, persistent, and superior in most tests but lacking in naturalness and spontaneity, having for his age an extremely rigid personality. He substituted magic thinking for realistic solving of problems at times, and had a tendency to overgeneralize. After a year's reeducation the father remarried. His mate was a more wholesome and healthy-minded woman than his first wife. He separated himself from his former wife's relatives, who had the children steeped in worries about their dead mother. With this marriage the whole family has come to life.

Under Marital situations were recorded, for examples, instances when both mates showed up in time, regardless of the nature of the first visit, whether they came together or one came first and was responsible for the other coming later. Under Separated problems were included only those with two persons, both of whom came and were exploring possibilities for getting together though living separately. Classified as Marital casualties were those cases involving individuals separated or divorced who were both willing to consider overlapping problems together, the most frequent problem of this nature being the welfare of children.

Classified as Business worries and anxieties under the larger caption of Occupational Problems were problems among individuals who were relatively successful in business but had emotional difficulties. Occupational adjustments included individuals who were not so well off and occupational adjustment was the main problem even though emotional and social factors may have contributed toward the difficulties.

Home Outgrowing problems might more properly be called Culture Conflict problems. For example one young man left a rural background and moved to a large city. The home he left behind was characterized by the authoritarian attitudes of an old generation so far as home discipline was concerned and fundamentalist's attitude toward interpreting life experiences. In the city he made an excellent occupational adjustment; he acquired skills in a well-paying trade, which assured him of economic security. He had difficulties, however, in readjusting to social and emotional demands of life in a large city.

All cases having Psychosomatic difficulties received medical treatment simultaneously with psychotherapy. A large number of the Child-Family problems were referred by pediatricians, and work on these cases was done cooperatively and interdependently by pediatrician and psychotherapist.

Only 6 or 5 per cent of the clients are classified as being either Psychosomatic or Neurotic. Of the remainder, 62, or 51.7 per cent, involve Interpersonal Relations, 38, or 31.7 per cent, are classified as Personal-Emotional, 11, or 9.1 per cent, as Occupational Problems, and 3, or 2.5 per cent, as Adolescent Conflict problems.

DIFFERENCES BETWEEN PSYCHIATRIC AND PSYCHOLOGICAL PRACTICE

A study of the problems and the sources of the referral of individuals who came to a psychiatrist and those who came to a psychologist shows distinct differences. Whereas the majority of the cases reported by the psychiatrist were either psychotic or psychoneurotic, more than 90 per cent of all the individuals who came to a psychologist in private practice were more often relatively normal people in relatively normal situations. Much more often were the individuals who came to a psychologist's office involved with other people, who also could be reeducated. An analysis of the sources of referral reveals some additional differences, which are given in Table 3.

Table 3: Differences in Referrals in Psychiatric and Psychological Practice

	Psychiatrist		Psychologist	
Time-Consuming Work	6 to 9 intensive cases		3 industrial organizations	
New Patients	96		120	
Single Occasions	71		14 (11.7%)	
Follow-up	Remainder 2 to 5 visits before disposition		55 (45.8%)	
Referral Sources	Colleagues mostly		Clients	32%
	Social agencies	5	Former clients	28%
	Veterans service	2	Agency—educational or social	16%
	Old patients	11	Self	9%
	Lawyers	4	Directory	8%
			Doctors	7%

What are the chief differences revealed in the foregoing table? Corresponding to the 6 or 9 intensive cases in psychiatric practice is consulting work for three industrial organizations in psychological practice. As against 96 new patients in psychiatric practice there are 120 clients in psychological practice. As against 71 single visits to the office of a psychiatrist there are only 14. Instead of the remainder being from 2 to 5 visits before disposition there is a wide range of frequencies in psychological practice, which may be summarized as follows: 54, or 45 per cent, of them were made by people who previously visited the office, 55, or 45.8 per cent, came after this period of time, and only 14, or 11.7 per cent, came for a single time. The median frequency of visits during this 5-month interval is 2, the 25 percentile is 1, and the 75 percentile 5. The sources of referral are also quite different. Instead of being for the most part referrals of a doctor, 32 per cent are former clients, 28 per cent are former clients continuing their visits, 16 per cent represent educational or social agencies, 9 per cent are clients themselves personally acquainted with the individual, 8 per cent are telephone directory referrals, and 7 per cent are referrals of doctors.

A study of the sources of referral and the nature of the problems reveal that both psychiatrists and psychologists are in a strategic position to render useful service, not only to the people referred but to people related to them. Though there is some overlapping, generally speaking the psychiatrist in private practice is more likely to be in a position to help educationally as well as in treatment through hospital work, contact with other physicians, and sometimes social agencies. The psychologist in practice is also likely to have work with social agencies but is much more likely to have more frequent referrals from educational agencies. Also, he is more likely to have opportunities to influence through university teaching or through contacts with personnel departments in industry.

In a general way it can still be said that the chief interest of the psychiatrist is in mental disease and in neuroses more readily susceptible to classification, if not diagnosis. As a medical specialty, psychiatry is concerned with the diagnosis and treatment of another group of diseases—mental. The psychologist, because of his training in abnormal psychology with its emphasis on description and analysis of mechanisms as well as his knowledge of facts and laws of learning from a study of educational psychology, is interested in reeducation or redirection through training for more effective adjustments. The primary concern of the psychologist in practice is not diagnosis and cure but understanding and management. The psychologist is not so much interested in abstract entities—a sound mind in a sound body—as he is interested in the human personality in all of his surroundings which have or can have meaning and value for him. By contrast, the chief interest of many psychiatrists is still classification. The trend of the psychologist's work is toward measurement. Classification is a half-way house to measurement on the road to understanding and on this road more of the modern trained psychiatrists and clinical psychologists are meeting and learning to cooperate. In considering who for what in practice, it must be remembered that there are psychiatrists and psychiatrists as well as psychologists and psychologists and that individual differences in therapists as well as in individuals diagnosed and treated or understood and helped to manage have to be considered.

WHO FOR WHAT IN PRACTICE

Mental disorders, the so-called psychoses, have been the interest of psychiatrists from the earliest days onward. Cameron (Hunt, 1944) in a chapter on functional psychoses calls attention to the important fact that the current official psychiatric classifications are not based on any final and convincing scientific evidence, that they are children of practical necessities at best, and that some of these classifications were determined on the basis of a vote in a psychiatric association, both here as well as in England. And a vote, he reminds us, does not necessarily represent even an advanced opinion in scientific matters, particularly when the science is young and the evidence conflicting. In some of the better institutes and foundations psychiatrists are using psychologists to advantage in diagnosis and follow-up for the purpose of measuring, or at least more reliably evaluating, emotional disorganization as well as mental deterioration in schizophrenia and organic psychoses, and in many instances which they consider relevant. Projective techniques and tests of mental deterioration are applicable in the treatment of psychotics in a community as well as in mental disease institutions. However, community treatment is not widespread and most psychiatrists, because they are not familiar or sympathetic with these investigations, see no need for their application. The need exists. In mental disease institutions there is more interdependent team work and the need is

satisfied. Reality favors the use of such knowledge and techniques in the community treatment of problems. Which is to say that in the treatment of psychotics, the psychologist can help both in diagnosis as well as in measurement of changes resulting from psychotherapy.

What of the neuroses? The old-time psychiatrist knew about hysteria, neurasthenia, and psychasthenia, and that was his knowledge of the neuroses. As a result of more interdependent research as well as experience, more psychiatrists as well as psychologists are now aware of certain fundamental facts needed in a consideration of the neuroses. Illustrative of such facts are: that the learning process is mediated by neural mechanisms but that gross psychopathology without the slightest neuropathology does occur and that it is precisely the same principle of learning that, in the words of Mowrer (Hebb, 1947): "under one set of life circumstances, will make a genius of one man may, under different circumstances, make a madman of another." In line with these facts, Mowrer suggests that the term neurosis be delimited to mean personality disturbances with a purely experiential or learned basis without any danger that the psychobiological concept will suffer. In this connection Mowrer also makes certain interesting comments as to reasons why some psychotherapists want to preserve their identification, however anonymous, with the medical profession. If the neurotic comes into the office of a psychologist, it is always advisable for him to get a measure of the constitutional factors at work and their significance from either a psychiatrist or an internist. He can cooperate with one or the other. It is interesting to remember that from 40 to 75 per cent of the patients who go to a medical diagnostician are reported to be either neurotic or to have neuroticism superimposed on somatic disease. Cultural determinants of personality are shown to play an important role in need of being considered for understanding neurotics and even psychotics. The most comprehensive concept of a dynamic theory of personality is an integration of the more relevant phases of contributions from the learning process of educational psychologists, the mechanisms from psychoanalysis, and the cultural determinants from anthropologists.

In a number of problems as they occur cooperation between psychiatrist and psychologist is possible. For example, in the case of children referred for examination and sent to private schools there is room for cooperation. Mentally limited children are more often referred to a psychologist for a mental examination. The need for the study of social maturing is generally known by most people in clinical work. How psychologists and psychiatrists cooperate in child guidance work in a clinic plan of organization is considered elsewhere in this book. Cooperation in child guidance work between psychologists and psychiatrists in private practice is also possible. More often cooperation is with pediatricians rather than psychiatrists. In problems of sex adjustment an experienced clinician in most instances can do the job without referring to other professionals. Problems of unmarried mothers generally imply cooperation with a gynaecologist and social workers. Problems of suicide in connection with guilt feelings concerning sex imply cooperation with the family doctor or an obstetrician as well as family members. Another problem that at times shows up in the private practice of a psychologist can be illustrated by the case requiring consultation with parents of a 20-year-old boy in a psychoanalytic sanitarium. The re-education of the parents during the boy's stay in the institution proved to be an interesting psychological problem. Cooperation with the psychiatrist in the institution made it easier to deal with the parents. Also, information concerning the parents was of value to the psychiatrist dealing with the boy.

Cooperation is also possible in legal testimony cases. Illustrative is a case of equity: a man who had bought a hotel which he could not maintain four years later sued for the return of his money on the ground that he was not sane when he bought the hotel. The nature of the court procedure and testimony implicated the need for expert witnesses on both normal and abnormal processes. The defense argued that the man was normal during the trial but was abnormal at the time he bought the hotel. In this instance the psychiatrist served as an expert on abnormalities presented, the psychologist as an expert on the normal behavior patterns described.

OVERLAPPING INTERESTS IN RESEARCH AND PUBLICATIONS

Evidences of increasing tendencies for psychologists and psychiatrists and other experts in the field of human relations to work together have been manifested in publications and in research as well as in practice. Of all the publications which have contributed to this increased cooperative attitude as well as integration of efforts, *The American Journal of Orthopsychiatry* deserves special mention. The fact that Dr. Lawson G. Lowrey has been the editor of

this Journal for many years has given it continuity and direction. Other publications in line with this more integrated attitude toward knowledge and practice are *Sociometry* and *Psychosomatic Medicine.* The effects of this trend are also being revealed in more recent publications of psychologists, sociologists, anthropologists, as well as psychiatrists.

Many psychodynamic problems have been and are being investigated by psychologists and psychiatrists by the application of more experimental and quantitative approaches (Murray, 1938; Hunt, 1944; Tomkins, 1943). A study of personality by projective techniques is of common interest to both psychologists and psychiatrists. Other overlapping research interests include studies on levels of aspiration, research in hypnotism and hypnotherapy, studies of ecological factors, studies of electroencephalography, studies of the origin and development of nervous disturbances experimentally produced, and contributions of topological or vector psychology to psychiatry.

What psychologists and psychiatrists both need is what Lynd (1939) says all scientists need: "A selective screen which lets through the 'significant' and eliminates the 'insignificant.' Scientific judgment and imagination cannot be taught, but the young scientist can learn them, if anywhere, from a great teacher-scientist who knows how to fill his laboratory and classroom with his conception of the significant. What social science evidently needs is to seek to make explicit its tacit criteria of the 'significant'." And the one significant problem that they can well afford to have uppermost in their minds is again one that Lynd suggests; namely, "What is it that we human beings want, and what things would have to be done, in what ways and in what sequence, in order to change the present so as to achieve it?" To answer this all-important question, both psychiatrists and psychologists can contribute much if they would only eliminate their own barriers and learn effectively to cooperate for a common purpose. Which is to say that psychologists and psychiatrists not only have contributions that they can and have to some measure made in the study of helping individuals but they have a contribution that relatively few challenge themselves to make; namely, the development of human beings who can live together well in a world as they can help make it rather than merely to educate them to adjust in the world as is. To do this task well, they will need to release their energies unreservedly without rivalries, anxieties, suspicions, and departmental biases and help solve with increased zest and intelligence man's greatest problem—the problem of his personality and its fulfillment.

Only by so doing can psychologists and psychiatrists fulfill the promise made by Dr. Shapley in his speech as president-elect of the American Association for the Advancement of Science in 1946; namely, that "if given time enough and good intentions, psychologists and psychiatrists and anthropologists should be able to explain our social and mental quirks to the world and teach us how to understand and accept the social and mental traditions of others." In the meantime, it is well to realize that not everything about man is known. More researches about his nature are needed. But much is known which, if applied, would substantially help civilization values survive. Psychiatrists and psychologists in private practice are in a strategic position significantly to contribute in the transmission of what is known and can be applied as well as to encourage the liberation of intelligence for more matured living.

READING REFERENCES

Bentley, Madison, and E. V. Cowdrey (eds.), *The Problem of Mental Disorder.* New York: McGraw-Hill Book Company, Inc., 1935.

Ginsburg, Sol Weiner, "Some Notes on the Private Practice of Psychiatry." *Bulletin of the Menninger Clinic,* 1946, **6**, 188–196.

Hunt, M. McV. (ed.), *Personality and the Behavior Disorders.* New York: The Ronald Press Company, 1944.

Meltzer, H., "Mental Hygiene and Learning." *Journal of Applied Psychology,* 1942, **26**, 268–284.

Murray, H. A., et al., *Explorations in Personality.* New York: Oxford University Press, 1938.

White, William A., *Twentieth Century Psychiatry.* New York: W. W. Norton & Company, Inc., 1936.

CHAPTER XV

THE PROFESSIONS: CONTRIBUTIONS OF APPLIED PSYCHOLOGY

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92. MEDICAL PRACTICE WITH SPECIAL REFERENCE TO PEDIATRICS

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Despite general recognition through the centuries that the patient's mental state was in some mysterious way effective both in aggravating and relieving organic illness, psychology as an inextricable part of medical functioning has yet to become a formal constituent of the medical curriculum. The dynamic psychology of the twentieth century introduced an embracing term which exonerated the physician of responsibility in those distressed cases yielding no demonstrable organic components; the organically oriented practitioner either impatiently nursed his "neurotics" along or shifted the burden to the psychiatrist. In the light of recent findings, however, this dichotomy in treatment cannot operate in the best interest of the patient or of medical progress.

There is now considerable doubt that the neurotic's sufferings are altogether functional; it seems likely that improved diagnostic techniques will in the future reveal some covert organic defect in the particular physiological system through which the conflict is expressed. Psychological tests of neurotics disclose consistent impairments in mental efficiency, possibly dependent on neurological correlates. Gesell (1945) expresses this succinctly: "Thought structures are just as real, just as somatic, as crystal and fiber structures. . . . the induction forces which operate at the lofty psychical level of creative thinking are subtle and complex, but they cannot be different in essence from those which shape the soma. Thought structures are in fact the ultra-electronic histology of the soma. . . . The long deferred clinical symptoms trace back to early life. As in neurology so in psychiatry there are many genetic phenomena which can be understood only in terms of developmental mechanisms."

Whatever may prove to be the relative contribution of organic and psychological disturbances in the neurotic illness, there is no doubt of the inseparable cyclical interaction in that group now labelled psychosomatic, whose manifestations are unquestionably those of somatic disease processes. That these and even infectious diseases are predisposed and exacerbated by psychic factors has been demonstrated many times. Day (1946) found consistent psychic trauma previous to the development of tuberculosis in young persons. Bronchial asthma reveals a large psychogenic component. (Psychosomatic Medical Monograph, 1941.) According to Richardson (1945) infectious disease develops only when the individual has reached the breaking point; it is no longer easy to conceive of asthma, or ulcer or obesity as a characteristic only of the individual, but as part of the family and the larger environment.

That psychological tension plays an important role in lowering the threshold of resistance even to virus disease is an important clue to the possible imminence of more calculable environmental interrelationships. The ready response of the autonomic nervous system to mental stress in the production of genitourinary and gastrointestinal difficulties, the dependence of vascular disaffections on environmental disturbances, and the fluctuation of mental level due to asthenia, endocrine imbalance, or disease process, allows the broad generalization that "every organic disease, temporary or permanent, contains a functional factor; and every functional disorder is accompanied by some physical change of secretion, excretion or motor function which in time affects tissues" (Wile, 1942).

It is difficult to comprehend, therefore, how medical practice can be conducted without psychological training. The patient at the present time falls between the Scylla of the organically oriented physician who usually ignores the psychological implications, and the Charybdis of the psychiatrically oriented practitioner who often ignores the organic implications (Wilson and Rupp, 1947).

PSYCHOLOGY IN PEDIATRICS

Whatever the psychological delinquencies in the medical therapy of the adult may be, there can be no toleration of them in pediatrics. The pediatrician has access to continuous anamnesis; he is aware of the mother-child relationship; he can observe and help to shape the physical and emotional adjust-

ment of his patient. He has the grave responsibility of anticipating the interaction of environmental pressures and constitutional weaknesses and predispositions. Without adequate guidance, a faulty interaction establishes the foundation of adolescent and adult personality and somatic problems.

To date, only the youngest pediatricians have been exposed to even minimum psychological training. Short of achieving the ideal state in which the pediatrician is as learned psychologically as he is medically, the simple solution would seem to be a closer conjunction between psychologist and physician. At the present time, the pediatrician refers only the most glaring behavior disorders to the psychologist. Not only has the rewarding period of possible prophylaxis been missed, but the situation has already been aggravated by concomitant family tension arising from the child's maladjustment.

Behavior disorders are, however, an already extreme symptom of poor integration. Less discernible are the psychogenic factors in the apparently organic disturbances, such as asthma, colds, diabetes, and dermatological conditions. Eleven asthmatic children analyzed by Mohr, Gerard and Ross (1941) presented basic conflicts revolving around an exaggerated fear of separation from the mother; they concluded that there was strong evidence that the specific emotional condition of these patients was at least of equal importance to the allergic sensitivity in the production of asthmatic attacks.

In a five-year study of nursery school children (Despert, 1944), the highest incidence of colds appeared in children from broken homes; anxiety and frustration stemming from traumatic situations induced internal tensions whose operation may be assumed an important factor in contributing to susceptibility. Other workers (Loughlin and Misenthal, 1944), applying criteria of normality to diabetic children, discovered an earlier onset of the ailment among the markedly deviate than among the normal. Twice as many of the abnormals had frequent ketosis. The purely medical treatment of the diabetic child must therefore remain inadequate.

Dermatological and allergic phenomena may be deeply rooted in childhood reactions to a congenital weakness. Deutsch and Nadell (1946) trace several presuppositions for the development of chronic allergies and related skin conditions: skin symptoms in early childhood probably originating on a genetic basis; a deviation or fixation of instinctual drives during the earliest psychic development and fusion of these with the different sense perceptions related to the skin; complementary neurotic traits of the environment favoring the amalgamation of the psychosomatic entity; development of a narcissistic and exhibitionistic personality pattern tinged with compulsive neurotic traits.

In view of the permeation of psychological factors in the child's development in illness and in health, psychological services are as vital an adjunct to pediatrics as are the analytical and diagnostic tests of the medical laboratory. "The psychology of the child, which includes all his behavior, is inseparably bound up with his nervous system and indeed with his entire organism" (Gesell and Ilg, 1946). The constructive road to optimum pediatric practice cannot be traveled without the routine cooperation of the psychologist in the guidance and treatment of all children.

Because of its relative novelty on the social scene and because competent psychologists are few, psychological service is, on the whole, limited to children with school maladjustments, to those with serious behavior disorders and to those in penal or mental institutions. Yet the so-called normal child might yield the best guidance dividends by achieving an adjustment unsusceptible to illness, flexible to unavoidable illness without traumatic sequelae, and otherwise comfortably integrated and mature. Suranyi (1943), in the light of noticeable differences in normal children at birth, and observing that some were from the beginning adored by everyone, some with special talents endeared themselves to a few, and some aroused antipathy in nearly all who came in contact with them, concluded that attempts to account for these reactions on the objective basis of physical appearance or classifiable behavior were futile. There seemed to be not single gross traits but an exceedingly large number of minute factors, each too small to be regarded as significant in itself but constituting a large responsible aggregate. He adds that many children now considered normal are in need of help; that there is need of a more adequate criterion for selecting them and for the recognition of small signs. In view of these facts, psychological guidance might well be a part of the routine medical check-up of even the normal, healthy child.

THE MENTALLY HANDICAPPED

The small signs in the normal child loom large in the infant handicapped by genetic factors, uterine accidents, birth injuries, anoxia, disease sequelae, or endocrine imbalance. From the beginning he requires

medical care and supportive psychological therapy. Without the differential diagnosis of psychological tests, it is often difficult to determine the cause and degree of mental retardation or deficiency, of personality deviation, or of speech and sensory impairment.

There is, for example, a distinct difference in the thinking processes of the mentally deficient child and of the child who shows evidence of an early acquired brain lesion. The latter stresses the functional properties of objects and the concrete elements of the situation. He elaborates on detail, changes meanings of objects to suit present associations and is unable to move beyond the given situation in space and time; his intellectual processes appear impaired, his performance is erratic and uncontrolled. The mental defective, on the other hand, shows a test pattern more controlled and less erratic, but with a limitation in most intellectual areas.

Mental deficiency and retardation derive from a varied etiology. There may be present the simple genetic factor of inferior intelligence or the results of an Rh blood incompatibility of mother and child. Recent reports (Cook, 1944) that the Rh factor accounts for nearly 30 per cent of hitherto undifferentiated feeblemindedness have been challenged, and confirmation of these findings is still lacking. Should only half this estimate prove true, it would approximate the total enrollment in schools and institutions for mental defectives in the United States. The exsanguination-transfusion treatment of the hemolytic diseases as a means of avoiding mental deficiency has yet to be validated.

The encephalitides following infectious diseases, congenital paresis, lead poisoning, endocrine imbalance, defects in fetal development, birth injuries, premature birth, and malnutrition—all take a toll either in frank mental impairment and retardation, in impairment of mental efficiency, or in personality disturbances.

For many of these conditions, where actual mental impairment or retardation exists, there is little medical help. But psychological guidance can shape the environment to provide maximum satisfactions with the patient's limited resources, to remove stresses and strains, and to lighten the complicating burden of parental guilt and unhappiness.

The effects of thyroid deficiency, if recognized and treated very early, can be somewhat mitigated. Though there is a distinct relationship between early adequate therapy and subsequent physical development, caution is indicated in predicting mental growth. It would seem that the rate of spontaneous functional progress before the initiation of treatment is a more reliable basis for intellectual prediction than either the time of beginning treatment or the dosage (Bruch and McCune, 1944).

The child born prematurely will probably show mental or emotional retardation for some time, the degree of retardation depending on the degree of prematurity. Nor can it be determined at what point in the developmental cycle mental growth corresponds with chronological age. If studies of visual acuity in prematurely born children (Eames, 1946) furnish a reliable index, then it may be inferred from them that there is a lag in the sensory development of the premature. Quite opposed, however, to the theory of retardation in the growth cycle of fetal infants is Gesell's (1945) unqualified observation: "Uncomplicated prematurity imposes no handicap on development. The majority of premature infants are normally endowed and, given proper care early in life, their development is entirely normal. They cannot, as children and adults, be distinguished from individuals born after a full-term gestation."

Concerning the influence of nutrition on mental growth, Kugelmass (1942) is emphatic: ". . . Good nutrition can contribute greatly to the fulfillment of the child's brain quota at an early age. . . . Recent research demonstrates beyond doubt that prolonged nutrient deficiencies, especially of proteins, vitamins and minerals, has a stunting effect on the nervous system. . . . A diet abundant in protective foods provides the nutrients essential for the formation of delicate structures that compose the brain and nervous system. . . . The slightest deficiencies are promptly reflected in the developmental tempo of the child which bespeaks deficient mental regulation of body processes. Inadequate amounts of protein are responsible for mental sluggishness. . . . Children deprived of vitamin A lose alertness, become lethargic and remain backward, despite dietary adequacy in all other respects. Deficiency in vitamin B leads to fatigue, sleeplessness, irritability, poor memory and disorientation for time, place and person. Lack of iodine in the diet makes a simpleton out of a child while goiter develops to mar his appearance. Insufficient protein in the diet leads to lassitude, torpidity, fatigue, despair and inability to concentrate."

BEHAVIOR DISORDERS

Malnutrition may exist in actuality or only in the mother's imagination. The ingestion, digestion, and elimination processes are the child's earliest affective

associations. On the one hand, they may aid in establishing a warm mother relationship; on the other, they can become powerful weapons for punishment and revenge. The grim emphasis on feeding and toilet schedules, the scolding and coaxing, the lengthy and fussy eating sessions, the insistence on quantitative intake or on special foods, all add up to early eating and bowel difficulties and subsequent physical and emotional complications. Many of these problems, for which she pays a high price, are rooted in the mother's own hostility and neurotic maladjustments. When the pediatrician and the parent recognize that each child is a variable dynamo with a uniquely constituted nervous system and an individual developmental tempo, a large number of these behavior disorders disappear.

Protests against emotional deprivation and environmental frustration take the form of emesis, breath-holding, tantrums, excessive crying, the provocation of convulsions, head banging, and the like. Some of these, having achieved satisfactions subsequent to an involuntary occurrence, are thereafter voluntarily induced to reproduce the initial success. Measures are, first, a relaxed indifference to these episodes when they occur, and second, therapeutic psychological attention to the conditions that produced them; or better still, a reversal of this order when the problem can be intelligently anticipated.

A wide assortment of other tension-releasing devices appear; restlessness, anxiety, unnatural fears, feelings of inferiority and the like, express themselves in nail-biting, thumb-sucking, enuresis, masturbation, hair-plucking, tics, stuttering, and other more or less serious and significant behavior patterns. They all require professional attention, not only in order to give the child relief, but because they may be symptomatic of graver maladjustments still to come. The mother's distress and involvement in the problem automatically disqualify her for finding the solution alone.

One or another of these behavior disorders may appear transiently in the normal child. But the neurotic, neuropathic, or psychopathic constitution presents them in constellation and more or less permanently. Uncertain as the somatic diagnosis now is, there is reliable evidence that physiological correlates exist to undermine resistance to even the less harsh onslaughts of the environment. A simple illustration inheres in the infant's undue distress after swallowing air. Most infants swallow air during feeding, but those suffering from it are the kinetic type who gulp their food. Rumination is a neurosis, the elucidation of which may be puzzling (Allen, 1944). The pleasure derived from it induces the repetition of a once involuntary regurgitation; this is the familiar pattern of psychological dynamics imposed on a substratum of somatic defect.

Hysteria, a common psychoneurosis in childhood, is marked by exaggerated impressionability and suggestibility, giving rise to abnormal reactions and sensations. Disturbed visceral function, motor disorders, and distorted emotional responses are the defense mechanisms adopted to safeguard the ego and preserve self-respect.

That these instabilities are in some measure physical is confirmed by a quantitative psychophysiological study of normal and neurotic children (Sherman and Jost, 1945) which concluded that, in general, the neurotic appears to be much more unstable physiologically than the normal child. For the neurotic, neuropathic, and psychopathic deviates, both medical and psychological supervision are mandatory through childhood and adolescence.

Enuresis, as an expression of anxiety, sexual excitement, resistance, defiance and immaturity is an extremely common type of behavior disorder. To the well-known dynamics, Despert (1944) adds the neurotic attitude of those responsible for training children in urinary control. In this group, she observed that though the enuretics fed and gained well as infants, psychomotor development was relatively late. They early experienced difficulty in expressing normal aggressive impulses and persisted in infantile demands far beyond the usual age levels. While not true in all enuretics, in some cases very early training results in overorganized personality patterns with compulsive tendencies. Enuresis rarely succumbs to physical measures alone.

The fearful child and the anxious child present different behavior syndromes. Fears develop as a result of the trauma of actual experience and, unlike anxieties, exist on the conscious level. The child exposed, for example, to surgical operation manifests emotional sequelae definitely attributable to this experience. Prolonged night terrors are characteristic responses of the one- and two-year-olds; those above four often become negativistic consequent to such traumatic episodes. The presence of the mother and the administration of anaesthesia before removal from the hospital bedroom will sustain the young child through a trying experience when it can not be postponed (Levy, 1945). In the face of night terrors, simple hypnagogic suggestion is often found effective.

Deafness of any degree has grave implications for personality adjustment. The totally deaf child does not progress beyond the prelinguistic babbling stage in which utterance is unaffected by auditory impressions. Part deafness in the young child can be determined by the introduction of direct tone by means of a rubber tube inserted into the external auditory meatus. The blinking, grimaces, and "eye-muscle reflexes" are not as reliably quantitative as are the responses by audiometric methods, but they will at least indicate the existence of some degree of hearing. Both hearing aids and rehabilitation at the earliest possible moment are recommended for total and part deafness.

Stuttering and other forms of speech disorders have long presented a challenge. Actual structural defects remediable by surgery or palate plates are relatively rare. The victim of cleft palate is understandably resentful, humiliated, and, as a result of this, often aggressive. His speech difficulties and his behavior patterns derive from clear-cut causes. Lisping, too, presents a simple diagnosis of poor dental spacing or the indulgence and perpetuation of infantile speech habits. Nasal speech may be due to polyps, adenoids, or tonsils; slowly developing speech to poor auditory perception. Much more subtle, however, are the mutisms, disorders of articulation, and stuttering.

The speech defective child displays a variety of personality difficulties, of which speech is only one expression. Overprotection may eliminate the need of speech, gesticulation providing a good substitute. Low or retarded intelligence influences the rate of speech development; or for protective reasons the child prefers to remain at the infantile level. Special education in a nursery school is imperative for these disabilities.

Stuttering is attributable to both physical and mental disturbance, and makes its appearance during the more stressful periods of growth: from two to four years of age when the mechanisms of speech are integrating; from six to eight years when school pressures are new; early adolescence with its physical, emotional, and social hazards.

A recent symposium on the psychosomatics underlying stuttering (Despert, Kopp, Krugman, 1946) revealed a many-faceted physiological, psychological, and environmental syndrome in the production of the stuttering personality. That anxiety is primary, not secondary, to the speech difficulty is an outstanding finding. The majority of the fifty children studied made a poor social adjustment very early, even before the speech defect could be considered a serious social handicap. In addition, handedness, contrary to a prevailing concept, played no part as a single etiological factor. The trend in familial diseases pointed to upper respiratory, upper digestive, and cardiovascular diseases in higher than average ratio. From this the investigators conclude that the hereditary factor might be interpreted as a somatic selectivity which would influence symptomatic choice in the stuttering individual.

In the same study, stutterers revealed a marked disturbance of motor function. Even in those cases which did not present motor retardation, an analysis of their scores showed a global, uniform defect in the maturity of the extrapyramidal system. Rorschach patterns of the same group disclosed emotional and personality maladjustments, rigidity, great anxiety, and obsessive-compulsive traits.

Johnson (1942), not excluding other causes, focuses attention on a previously neglected factor, namely, that stuttering in serious forms seems to develop after diagnosis rather than before it, and is, therefore, a consequence of the diagnosis. This may imply that formal medical recognition of his difficulty poses a new problem for the stutterer.

Too often parents and teachers attach disproportionate importance to the stuttering while minimizing the personality and neurological correlates of which it is only an expression. Probably underlying both the stuttering and the parental reaction, however, is a poor parent-child relationship, lack of parental response, and a resulting feeling of insecurity.

NEED FOR PEDIATRIC-PSYCHOLOGIC COOPERATION

There seems to be little doubt from this brief discussion of personality and disease relationships, that the pediatric approach must be in large measure psychological; that pediatrician and psychologist must work together in close team-work, not only when personality organization provokes the disease syndrome or is adversely affected by it, but when routinely guiding the apparently normal child.

A word of caution is in order lest a tendency to overstress the psychogenic aspects ignore the simple physiological evidence. The myopic child expresses his discomfort in a variety of seemingly neurotic patterns. Night terrors and even asthma may result from difficult breathing arising from bad tonsils or adenoids. The apparently willful and disobedient or suspicious child may be laboring under a hearing

difficulty. Sexual derelictions may begin with itching, irritation, or inflammation of the genital area. Inattention, lassitude, and indifference can often be laid to neurasthenia, malnourishment, or fatigue. The psychologist shares with the pediatrician, therefore, the obligation to consider all the possible factors before exercising his special skills.

Because the dynamics of the young personality are not yet clouded over by the cornified layers of resistance to social pressures and conformity, simple psychological measures usually suffice. In many cases, therapeutic hours spent with the parents are more rewarding than those spent with the child.

READING REFERENCES

Carmichael, L. (ed.), *Manual of Child Psychology*. New York: John Wiley & Sons, Inc., 1946.

Cobb, S., *Borderlands of Psychiatry*. Cambridge, Mass.: Harvard University Press, 1943, Chap. 1, "Body and Mind"; Chap. 8, "Psychoneurosis"; Chap. 9, "Psychosomatics."

Davidson, W. C., *The Compleat Pediatrician* (4th ed.). Durham, N. C.: Duke University Press, 1943

Moodie, W., *The Doctor and the Difficult Child*. New York: The Commonwealth Fund, 1940.

Tomkins, S. S. (ed.), *Contemporary Psychopathology*. Cambridge, Mass.: Harvard University Press, 1943, Sec. II, "Psychoneuroses and Psychosomatic Medicine."

93. ENGINEERING

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Engineering must have been concerned with psychology since its very beginning insofar as the human element was involved in the work. But pictorial records as well as writings in ancient times prove that the aim of most work was quantity and quality of output, quite irrespective of the effect on the human beings involved. It was only with the coming of scientific management at the beginning of the twentieth century that emphasis in engineering was put on the worker as the center of occupational activity and his betterment one of its objectives. The writings of the pioneers in scientific management: Henry R. Towne (1844–1924), Frederick W. Taylor (1856–1915), Harrington Emerson (1853–1931), Henry L. Gantt (1861–1919), and Frank B. Gilbreth (1868–1924), show the increasing recognition of the human element in industrial production.

HISTORICAL

Cooperation between engineers and psychologists or a realization that they had a common field in industry has developed only in recent years. The first mention of management psychology was made by L. M. Gilbreth in 1911 at a conference held at Dartmouth when it was suggested that investigations in this field might reconcile many differences, integrate valuable experience, and prove highly profitable for psychology and engineering. The history of a book by L. M. Gilbreth, *The Psychology of Management* (1912), reflects the development of technology in psychology. Its area was suggested as a doctor's thesis to many departments of psychology in leading universities and rejected by all with the comment that "psychology is a pure science." Yet it provided the earliest medium of communication between the psychologist and engineer, considered so important today in delineating the psychological problems of the management field and in indicating the relation of scientific facts in psychology to them.

During the ensuing thirty-five years much has happened. The engineer has come to realize the need of knowledge of psychology no matter in which field he works: civil, mechanical, mining, electrical, etc. Many of the engineers who have gone into executive, personnel, and sales work rather than into technical engineering have found either that the psychology they had was an asset or that not having it was a liability, so that at the present time an increasing number of technical schools, colleges, and universities that train engineers are including psychology in their curricula either as required or

as optional study. Then, too, psychology infiltrates into engineering training through courses in education, personnel, economics, sociology, and physiology. Given a little help in these courses, the engineer is able to increase his knowledge of psychology in personal observation by studying those for whom he works and those with whom he works.

ENGINEERING POINT OF VIEW

The engineer has certain advantages and certain disadvantages in the study of psychology. He is trained to reverence the accurate measurement of the exact sciences and to expect formulae, principles, and laws. He admires classifications and things which are definite and clean-cut. Quite naturally, therefore, he underestimates the value of what he calls the inexact sciences and finds it difficult to study the illusive human element. Once having overcome these handicaps, however, he goes at the work of understanding the psychological problems of industry with perseverance and because of his practical experience he is particularly effective in testing the conclusions, techniques, and equipment of psychology when applied to industry and in making suggestions for their improvement. Especially is this true of the engineering options related to the field of psychological investigation and equipment, as in the fields of electricity, plastics, and heating. Also, the engineer has developed independently such measures of human activity and rest as the micromotion and the cyclograph methods which record behavior, learning, and skill.

The engineer has difficulty with the vocabulary of psychology. He sees the lack of agreement among psychologists and the conflicts between the different schools, which makes it difficult for him to know what to accept of psychological principles. He notices an indifference among psychologists toward application in the industrial and business fields. More active interest where engineers and psychologists meet exists in the areas of selling and advertising. But the engineer feels that psychologists in general have not sufficiently recognized their practical contribution to society as important and they have not accepted the solution of its human problems as a task for their best talent.

INDUSTRIAL POINT OF VIEW

The most encouraging for the affiliated attack of psychology and the engineer upon the human problems of industry is a change in industrial point of view toward the worker in industry itself. As one looks back over the years one sees certain significant things. Among top executives there is more understanding of the need for considering the human element. This is partly because of the type of education executives have received and partly because of the increasing number of problems they are called upon to solve, which have to do with the successful handling of people. Industrial unrest, government activities, and programs of technical societies have brought such problems into the open. There is increasing realization, not only that intelligent solution of the human problems of industry is necessary, but that there are deep-seated conditions relating to these problems which top executives must understand and solve. Industrial leaders look to the contribution of psychology particularly through the medium of engineering for this understanding.

COORDINATED FUNCTIONS

With the years has come better coordination of activities concerned with human relations in industrial plants. Industrial engineering, personnel work, and industrial relations work developed independently in industry. This has had advantages for industry which has profited by the diversified background and training of the men and women who undertook the tasks. But there was overlapping and neglected functions. An effective procedure of integrating objectives and dividing responsibility in these areas developed gradually. Safety campaigns, the installation of time and motion study, and investigations of fatigue and skill have made it clear that coordinated effort in the investigation of the human factor in industry is not only desirable but indispensable.

COORDINATED TRAINING

Along with this improved coordination of human activities in industry has come a recognition of the necessity for more information in the related fields of effort. The younger men in time and motion study have been taking courses in personnel work; the personnel staff members have been taking courses in industrial and vocational psychology, and so on. Many industries have inaugurated conferences of technical and nontechnical men concerned with workers. The result of this is a united approach to the worker. Today, the technical or industrial engineer handling job descriptions, analyses, and ratings are adding to the information useful to the personnel department. The personnel department may include engineers on its staff working on selec-

tion, training, promotion, and release, and industrial relations. Psychologists on the staff of the personnel department are contributing selection and training techniques, including aptitude and achievement tests, and are developing measures of attitudes, interests, and morale for the human relations department. The engineering department keeps itself informed as to what is being done in the personnel department in order to do its own work more adequately. It is vital to industry that the various approaches of management to the worker should be integrated in this manner.

INDUSTRIAL ENGINEERING

The field of industrial or administrative engineering is most closely allied to psychology of all engineering fields. But the infiltration of formal psychological knowledge and technique into this field has occasioned many complications in instruction and in professional contact. The engineer has real difficulty in acquiring a working knowledge of the science of psychology and few industrial psychologists have a sufficient knowledge of engineering to work as specialists in industry and business. What is said of industrial or administrative engineering is equally applicable to other engineering specialties with psychological affiliations, only in lesser degree.

INSTRUCTION

The industrial engineer has, because of the nature of his work, had much more opportunity to acquire and use the findings of psychology than other engineers. It is realized that he must know everything available on the handling of human beings if he is to do a successful job. This means that psychological courses given on college campuses for other groups are likely to be open to him when not elective for other engineers. If none such are available they may be introduced for him in the industrial engineering department. It is an unsolved question as to whether it is better for him to have the material now offered in psychology departments under the title of industrial psychology or whether it is better for him to be trained only in the industrial engineering department where psychological contributions are assembled for him. The trend is toward giving him psychological training with nonengineers.

Industrial psychologists generally think of their field as a professional specialty or as a field in which industrial engineers might become specialists through graduate training in psychology. The industrial engineer is trained now more generally in management procedures, but the future development of this branch of engineering may be in the direction of greater specialization in psychology. The engineering training offers the best background for industrial psychologists and industrial psychology is a rapidly developing unit of technical knowledge in which engineers have and will specialize in the future.

Industrial engineering is not yet established as a major field in the engineering group. It is an option under mechanical engineering in certain engineering schools. This is apt to exclude any from its study except mechanical engineers. On other campuses an equivalent of industrial engineering is offered in departments or schools of commerce and business with the result that the personnel worker in industry and business may not have the fundamental engineering training which many think essential for this work. More serious in sound than in substance is the complication on many campuses where industrial engineering is taught both in the engineering school and in the commerce or business school, and also in courses in psychology, sociology, and economics. This plan makes it available to all entering the personnel field. Many of the larger universities have courses in personnel work, industrial psychology, and industrial engineering where content overlaps considerably but where the courses are presented from the point of view of later application.

PROFESSIONAL CONTACT

The technical societies complicate the problem of infiltration of psychology into engineering and particularly into industrial engineering. Full membership in the Management Section of the American Society of Mechanical Engineers, the oldest and largest group in industrial engineering, is open only to those who first fulfill the very high technical requirements for membership by mechanical engineers in the Society. This is because the Society considers such training and experience necessary in order to make effective contributions in any of its divisions. The American Management Association and the Society for the Advancement of Management, which is a fusion of the Taylor Society and the Society of Industrial Engineers, are open to those without engineering training. These Societies concern themselves not so much with technical as with personnel problems.

Many psychological associations have such rigid requirements that no engineer may become a full

member unless he also has his doctorate in psychology and experience in psychological work. This has advantages to psychological specialization in industry, but it prevents that intensive knowledge of industry among its members which should become a part of the working equipment of psychologists who are cooperating with engineers.

CONTRIBUTION OF SPECIALTIES

Various professional specialties in human problems contribute to engineering, including industrial relations, vocational psychology, industrial psychology, industrial management, motion study, vocational guidance, and clinical psychology. The last is creating much interest in industry and making fine contributions.

HUMAN RELATIONS

The writings of such specialists in industrial relations as Elton Mayo and Elliott Dunlap Smith represent an approach which is extremely important to the industrial engineer. Workers in human relations have an appreciation of the benefits of the engineer's training, both in the operating field and in the handling of human beings. They are contributing to a better practical understanding of the human sciences so that the engineer can use them to advantage.

INDUSTRIAL PSYCHOLOGY

The writings of specialists in vocational and industrial psychology are helpful to the industrial engineer, not only for the technical psychological material they contain, but for references leading the engineer into a more extended search in the field of psychology for material likely to be useful to him.

INDUSTRIAL MANAGEMENT

The field of industrial management has a definite contribution for engineers in pointing out the value of the human sciences. The writings of Leon Pratt Alford, and Dexter Simpson Kimball, representing the administrative emphasis in industrial engineering, are illustrative of this.

MOTION STUDY

The field of motion study and work simplification, as represented by the work of Ralph M. Barnes, Allan H. Mogensen, Marvin E. Mundel, and others and that of time and motion study, as represented by the work of Stewart M. Lowry and Harold B. Maynard is contributing one of the major specialties of industrial engineering in the study of human beings in industry.

FUTURE DEVELOPMENT

Little has been written by engineers in the field of psychology and few of the psychologists who have written of its applications to engineering have had engineering training and experience. But there is increasing effort, both on university campuses and in industry, to further cooperation between engineers and psychologists and to integrate their services to industry. This is the reverse picture of thirty years ago, and it undoubtedly will result, not only in more effective contributions in industry, but in a literature which will present the psychological problems of the engineer and their solutions more adequately.

READING REFERENCES

Alford, L. P., *Managements Handbook*. New York: The Ronald Press Company, 1924.

———, and J. R. Bangs, *Production Handbook*. New York: The Ronald Press Company, 1944.

Barnes, R. M., *Motion and Time Study* (2nd ed.). New York: John Wiley & Sons, Inc., 1940.

Kimball, D. S., and D. S. Kimball, Jr., *Principles of Industrial Organization* (5th ed.). New York: McGraw-Hill Book Company, Inc., 1939.

Link, H. C., *Education and Industry*. New York: The Macmillan Company, 1923.

Lowry, S. M.; H. B. Maynard; and G. J. Stegemerten, *Time and Motion Study and Formulas for Wage Incentives*. New York: McGraw-Hill Book Company, Inc., 1940.

Mogensen, A. H., *Common Sense Applied to Motion and Time Study*. New York: McGraw-Hill Book Company, Inc., 1932.

Mundel, Marvin E., *Systematic Motion and Time Study*. New York: Prentice-Hall, Inc., 1947.

National Research Council, Committee on Work in Industry, *Fatigue of Workers and Its Relation to Industrial Production*. New York: Reinhold Publishing Corporation, 1941.

Roethlisberger, F. J., *Management and Morale*. Cambridge, Mass.: Harvard University Press, 1941.

———, and W. J. Dickson, *Management and the Worker*. Cambridge, Mass.: Harvard University Press, 1939.

Smith, E. D., *Psychology for Executives* (rev. ed.). New York: Harper & Brothers, 1934.

Tiffin, J., *Industrial Psychology* (2nd ed.). New York: Prentice-Hall, Inc., 1947.

94. THE LAWYER

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Psychology deals with the prediction and control of behavior. The psychologist must predict the reactions of a chimpanzee or a child, of a mouse or a man, in a variety of stimulus situations; and he must be able to control their reactions. Likewise, the discipline known as "law" deals with the prediction and control of behavior. The lawyer must predict the reactions of a variety of different people, sometimes of a human biped called the Judge or the Court, or of a group of 12 human bipeds called a Jury; and then he must try to control what they will do.

The fact that both the psychologist and the lawyer must predict and control behavior does not mean that psychology and law are synonymous. Each discipline includes problems of behavior not touched by the other. Even mutual problems are dealt with in entirely different ways. This has been demonstrated by Powers (1937) with reference to problems of the reliability of courtroom testimony, criminal responsibility, the control and prevention of crime, and the treatment of the offender.

Nothing is more erroneous than the notion that every phase of psychology has its application to law. The astute lawyer should, and often does, know a great deal about the psychology of individual differences, intelligence, personality, habit, perception, attention, memory, and suggestion; but he need not, and probably does not, know much about maze learning, brain extirpation, the Weber-Fechner law, and aptitude testing. In fact, there are whole fields of law where the findings of psychologists are not directly applicable. The psychologist cannot add much to the knowledge of the lawyer on such subjects as Agency, Equity, Conflict of Laws, Public Utilities, Taxation, Bankruptcy, and Trusts. On the other hand, the psychologist may, if he will, make worthwhile studies of *special phases* of the law of Contracts, Insurance, Sales, Bills and Notes, Property, and Wills. And he can make contributions of practical value to the lawyer in the large areas of Criminal Law, Torts, Evidence, Family Law, Labor Law, Damages, and what might be called the field of human relations in office and courtroom practice.

THE LAW IN OPERATION

There is an extensive literature on the work of the lawyer, much of it of a psychological character. This literature may be divided roughly into (1) the general analyses of the law in operation and (2) the studies of highly specific legal problems. In the former group may be placed such works as Burtt's *Legal Psychology* (1931), a collection of some of the principal applications of psychology to law; Robinson's *Law and the Lawyers* (1935), a psychological analysis of legal thinking; and Timasheff's *An Introduction to the Sociology of Law* (1939), a discussion of the interrelationships between jurisprudence, sociology, and psychology. Interestingly enough, some of the best psychological analyses of law in operation have been made, not by psychologists, but by lawyers, e.g., McCarty's *Psychology for the Lawyer* (1929), Frank's *Law and the Modern Mind* (1930), Green's *Judge and Jury* (1930), Weihofen's *Insanity as a Defense in Criminal Law* (1933), Cairns' *Law and the Social Sciences* (1935), Ulman's *A Judge Takes the Stand* (1936), Wellman's *The Art of Cross-Examination* (1936), Wigmore's *The Science of Judicial Proof* (1937), and Radin's *The Law and Mr. Smith* (1938).

SPECIFIC PSYCHOLOGICAL CONTRIBUTIONS

A great many publications of psychologists on specific problems of sensation, perception, attention, learn-

ing, forgetting, emotions, motivation, intelligence, and personality, have a direct bearing on the work of lawyers, and they will do well to learn about them. Yet almost without exception these psychological experiments were conceived and executed without any reference to possible application in legal matters. As an example, the results of numerous experiments on visual and auditory acuity may be useful to the practicing lawyer in judging the accuracy of statements of a witness, but these experiments were not made to be of use to the lawyer. Again, modern intelligence tests would have tremendous practical value for the lawyer if employed to aid in the determination of the competency of witnesses, although the usual legal practice is to judge intelligence by overt behavior, including the answers to a few routine questions. Likewise, diagnosis of various kinds of neurotic and psychotic behavior has practical import for the lawyer, although the tendency is to rely on the so-called legal tests of "insanity," such as judging whether the person could tell right from wrong.

A few psychologists have attacked specific legal problems in a direct manner, and have established techniques or collected facts useful to the lawyer, of which the following are illustrative.

GUILT AND LIE DETECTION

Burtt (1921), Marston (1921), and Larson (1932) were pioneers in developing tests of deception; and valuable contributions to the field of "lie detection" also have been made by Leonarde Keeler. By the use of such measures as word association, reaction time, breathing records, blood pressure, pulse rate, and psychogalvanic reflex—either singly or by combination of two or more methods—this work has advanced to the point where the accuracy of detection of guilt *by a trained investigator* is far above chance expectation. A detailed discussion of this topic is presented in Section 83.

TRADE-MARK CONFUSION

Paynter (1920) and Burtt (1925) have demonstrated the value of psychological experimentation in the solution of problems of confusion between various trade-marks and trade-names. Whether or not one mark or name is an infringement of another already in use is a psychological as well as a legal question, demanding something more than mere impression or guessing on the part of lawyers. Psychologists have worked out various laboratory techniques to measure the degree of confusion.

EVALUATION OF TESTIMONY

Several psychologists have been interested in problems of the collection and evaluation of testimony. There is experimental evidence that large committees or juries are desirable when many hypotheses are needed, small groups when prompt formulation of opinion is desired (South, 1927). Dashiell (1933, 1935) has shown that a jury in a laboratory situation tends to give a more complete and more accurate account of a definite number of details than the individual juryman generally does. This has been substantiated by R. L. Thorndike (1938), who also found that individuals who are right hold to their position more often than do those who are wrong, even though they usually cannot win over an opposing majority. Perhaps the most fruitful psychological analyses of legal testimony and evidence are in a series of articles by Hutchins and Slesinger (1928 and 1929), who have discussed several mentalistic aspects of the law, such as spontaneous exclamations, state of mind in issue, and consciousness of guilt.

SOCIAL-PSYCHOLOGICAL STUDIES

A variety of studies in the social psychology of law have been carried out by the author of the present section. One was an analysis of the problem of why our courts of law are so slow to accept valid scientific principles; blood-grouping tests for nonparentage is a specific example of a well validated scientific finding which over a period of years has been ignored or rejected in the law, and the psychological reasons for this have been carefully analyzed (Britt, 1937, 1938, 1940). A detailed study of wills (Britt, 1937) probated in New York County demonstrated the uniformity of pattern of these documents drawn up by lawyers, and especially the tendency to preserve the family as a significant social unit. A study of the behavior of pedestrians with respect to a new traffic law was studied by the application of Allport's J-curve hypothesis (Britt, 1940). The lack of conformity to the law indicated the need for other-than-legislative efforts to secure the desired conduct. The value of study of the social psychology of law for the law-school student and future lawyer was shown in another article (Britt, 1940), in which the content of such a course is outlined. Its value was illustrated specifically by a psychological analysis (Britt, 1940), which showed that the line between intent and no intent and between premeditation and no premeditation is difficult to draw.

A psychological approach to a field of law was

demonstrated in an empirical study of 154 rules of evidence (Britt, 1940). The rules were submitted to four different groups: evidence experts, law professors, practicing lawyers, and psychologists, with the request that they judge the rules as good, probably good, doubtful whether good or bad, probably bad, or bad. One of the most striking results was the high degree of consistency between the judges within any one group; the popular notion that lawyers cannot agree among themselves, and that psychologists never agree with each other, was not borne out in this study. It is also significant that the amount of agreement between the psychologists —without legal training—and each of the three groups of lawyers was quite high. However, there were significant differences between the judgments of psychologists and lawyers on several rules on which psychological judgments were required. A detailed statistical analysis indicated that many of the rules of evidence should be continued in use, but that a number of others should be modified or discarded.

In another experimental study (Britt and Mensh, 1943), it was found that 60 per cent of the subjects made errors in identifying their *own* handwriting. No apparent sex differences in ability to identify their numbers or their handwriting were discovered; but there were more errors for identification of numbers than writing. The results indicate that lay witness identifications based upon "mental" comparisons should not be accepted as legal evidence.

A final example of a social-psychological study is the detailed analysis (Britt, 1943) of various questions on law that might prove useful in connection with problems of military government. An entire framework of legal queries was developed from a psychological point of view, to be asked and answered by any ethnologically minded person as he moved into a new society and new culture.

PSYCHOLOGY FOR LAWYERS

The study of psychology is of direct advantage to the future practicing lawyer. It is important pre-legal training.

GENERAL TRANSFER

There is a general transfer effect so that, the greater his understanding of human behavior through the study of psychology, the better should be the work of the future lawyer. There is no phase of his work which does not involve working with human beings; and the better he understands them, the better practitioner he should be. He constantly encounters problems of intelligence, motivation, personality, and emotions which call for careful prediction and control of behavior.

SPECIAL TRANSFER

There is a special transfer effect to legal practice from the study of specific psychological techniques. For example, the lawyer may wish to use some of the standard psychological methods of interviewing; to study the span of attention of one of his witnesses; to use laboratory tests of visual or auditory perception; to analyze the curve of forgetting; to test deception or "lying"; to employ tests of recognition in dealing with problems of identity of persons or property or names; to recognize neurotic or psychotic behavior symptoms; to give psychological advice to clients concerned with problems of personal adjustment; or to make psychological analyses of the thinking processes of various judges according to their written opinions and behavior, as did Gaudet (1938).

BROADER PERSPECTIVE

The study of psychology should give the lawyer a broader perspective for the evaluation of his own work. He should be able to develop a more complete picture of the law as it actually functions in society. In addition to his attention to what the established rules of the law are, he should develop a more persistent curiosity and psychological fact-mindedness about legal behavior. This requires a survey of the psychological and sociological implications of the work of the courts and of the legal profession, and an evaluation of law enforcement and law administration.

LAWYERS AND PSYCHOLOGISTS

The great majority of lawyers have had no formal education in psychology. Of those who have had basic courses in college, comparatively few have received training in standard psychological techniques useful in legal practice. Most lawyers develop theories of intelligence, personality, motivation, and emotion from their own personal experiences, but have not checked their hypotheses scientifically. Their law-school training has emphasized the fact that the practice of law involves the analysis and mastery of "rules" of law, statutes, and written opinions of courts, but the importance of human relationships as applied to the formulation of these rules has often been neglected.

Here are two groups, lawyers and psychologists, each with little understanding of the work of the

other. In their attempts to solve identical problems of behavior, the lawyer and the psychologist have traveled two different, though related, roads. The roads have been so different, in fact, that neither has been particularly cognizant of the work of the other on their mutual problems. Yet many a legal theory, in addition to being a statement of a principle of law or of procedure, is based on a definite belief as to the nature of the human mind or human behavior. One does not have to read many books on jurisprudence or many opinions of courts to find fairly detailed theories and ideas about the feelings and emotions of witnesses, the psychology of motivation, the thinking processes of judges, problems of memory and learning, mentality and intelligence, intent and volition, or the determination of what went on in a man's mind under a certain set of circumstances. In other words, there is an area which overlaps law and psychology, called "legal psychology," or perhaps more accurately the "social psychology of law." It consists of a psychological analysis, not only of the basic principles of psychology involved in the practice of law, but also of the sociological effects of the law and courts in operation, and of the psychological assumptions underlying various legal theories.

LACK OF COOPERATION BETWEEN LAWYERS AND PSYCHOLOGISTS

The absence of cooperation of lawyers and psychologists on problems which should be to their mutual interest is surprising. If a lawyer has had little or no psychological training, one might suppose that he would call in a psychologist for advice on certain problems. Yet he does nothing of the sort. Lawyers are no different from most other nonpsychologists in having strange conceptions of what a psychologist is or does. The lawyer is likely to think of the psychologist as a high-brow fortune-teller who hypnotizes people, or as a "rat-ologist" who runs *mus norvegicus albinus* and other kinds of animals about in mazes; or he may believe that all psychologists are making dream analyses and looking for symptoms of abnormal behavior in people they meet. It is largely the result of an inadequate public relations program on the part of psychologists that most lawyers have never heard of—let alone encountered—the work of psychologists on individual efficiency, clinical examination, penology, vocational and personnel work, industrial psychology, educational psychology, and applied social psychology.

Psychologists often have equally strange ideas concerning lawyers. Along with most other nonlawyers the psychologist is apt to feel suspicious of lawyers and perhaps to stereotype them as noisy, tricky, and dishonest, overlooking the fact that the great percentage are reserved, sincere, and reliable. The psychologist may also have the mistaken idea that most legal problems are those of *criminal* law, failing to realize that most lawyers rarely if ever handle a criminal case. Finally, the psychologist is likely to think that lawyers spend most of their time in the courtroom, whereas many lawyers never go to court and most spend only a very small percentage of their time there. It is a common saying among lawyers that the good lawyer keeps his client out of court.

LABORATORY OR LAW OFFICE?

The legal psychologist should examine law and legal theories with the same objective attitude that he would have in studying the drippings of saliva from a Pavlovian dog. But he must be realistic as to what he means to accomplish, and not fall into the error of carrying out a laboratory study which has little or no counterpart in the actual everyday practice of the lawyer. An experiment on depth perception may offer significant results, yet not of a sort which can be applied by the practicing lawyer to a particular set of facts. An experiment on various ways of phrasing questions for a witness—with all variables controlled, including the presentation of the questions visually or in a standard tone and rhythm—may not have much practical value for the courtroom lawyer who uses such additional variables as gestures, intonations of words, effective pauses, and surprise questions.

A second difficulty which the psychologist must recognize is that most psychological tests and techniques would not be permitted in a courtroom or, if carried on outside, that the results might not be admissible in evidence. Therefore, the psychologist should be conversant with the rules of evidence in his particular jurisdiction if he is to make valid suggestions to the lawyer.

In the third place, the psychologist must remember that he is dealing with a legal controversy and not with abstract determination of Truth. When a practicing lawyer has once accepted a case for a client, it is his primary job—not only for business reasons but on ethical grounds—to protect his client's interests in every way possible. So far as office practice is concerned, this means a diligent search for those facts and values of greatest benefit to his client; and so far as court practice is concerned, this means an arrayal of the facts of advantage to his client. The

lawyer's office and the courtroom are not laboratories—they are battlefields!

READING REFERENCES

Britt, S. H., "Blood-Grouping Tests and the Law: The Problem of 'Cultural Lag.'" *Minnesota Law Review,* 1937, **21,** 671–702.

———, "The Rules of Evidence; An Empirical Study in Psychology and Law." *Cornell Law Quarterly,* 1940, **25,** 556–580.

———, "The Significance of the Last Will and Testament," *Journal of Social Psychology,* 1937, **8,** 347–353.

———, "The Social Psychology of Law: I. The Course and Its Advantages," *Illinois Law Review,* 1940, **34,** 802–811.

Britt, S. H., "The Social Psychology of Law: II. A Sample Lecture: Premeditation and Intent." *Illinois Law Review,* 1940, **34,** 919–928.

———, and I. N. Mensh, "The Identification of One's Own Handwriting." *Journal of Criminal Law and Criminology,* 1943, **34,** 50–60.

Burtt, H. E., *Legal Psychology.* New York: Prentice-Hall, Inc., 1931.

Larson, J. A., *Lying and Its Detection.* Chicago: University of Chicago Press, 1932.

Powers, E., "Psychology and the Law." *Journal of Abnormal and Social Psychology,* 1937, **32,** 258–274.

Robinson, E. S., *Law and the Lawyers.* New York: The Macmillan Company, 1935.

95. LIBRARIANSHIP

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Contemporary practice of librarianship in this country is grounded in the premise that the library is a social institution with broad educational functions essential to the preservation and development of a democratic society. A number of closely interdependent assumptions concerned with differences in publications, differences in readers' uses of publications, and interrelations of these two factors as they vary in time and in place constitute, according to Waples (1939), the basic theory on which the library operates. These assumptions define the aims and policies of the library and are instrumental in determining the social vitality of the library profession. In this sense library science is essentially psychological in viewpoint.

Libraries of all types—public libraries, school and college libraries, special libraries—are for the most part psychologically oriented likewise in their personnel policy. In appraising the status of library schools at the close of the first fifty years of library training in America, Wilson (1937) pointed out that demands upon the library by formal and adult education have become so complex that problems in the library field can be successfully solved only by a personnel whose educational qualifications will enable it to formulate library policies intelligently in relation to the needs of society. He stressed the necessity for selection of students who show ability to meet these needs, education of these students to apply procedures and principles of other disciplines to the solution of library problems, discovery of patterns of service through which librarianship may be made more vital and significant, and the training of students in use of research methods for the more effective solution of library problems.

More recently, Martin (1946), in discussing postwar problems of library education, states that recent advances in library service have been centered in two additional major abilities—understanding of the content of recorded knowledge and insight into the way

in which recorded knowledge is utilized in the communication experience. He maintains that reading specialists must be added to the library-school faculty to insure that librarians-in-training will gain an understanding of the reading experience. A course in this subject, he says, could then be supplemented by further study in psychology and social psychology aimed at an understanding of motivations for human behavior and by study of distinctive population and academic groups in order to note variations in the learning process. Eventually, predicts Martin, reading, or even the broader concept of communication, may constitute the very framework of library education into which technical skill and subject knowledge will be added to form the full education of librarians. It seems clear that both library service and library education are becoming increasingly dependent upon a basic understanding of the psychology of the reader.

NEED FOR PSYCHOLOGY

Among the major professional problems encountered in the operation of libraries, Waples (1939) lists government, administration, finance, personnel, book selection, and technical practices. Analysis of these problems and those listed by Wilson (1937) and Martin (1946) indicates that many of them involve psychological factors which have a direct bearing upon their solution. It is evident that two principal areas exist for specialized application of psychological knowledge and techniques to library problems: (1) in professional education for librarianship, and (2) in administration of various types of library service.

Progressive library administrators are well aware of the need and value of applying sound psychological knowledge and of using psychological techniques in planning and carrying on library activities. Actual application, however, has been limited for the most part to efforts of interested librarians to utilize available psychological knowledge in the solution of local institutional problems. Logically, the next step should be employment of psychologists to aid the effective performance both of the long-established and the newly assumed educational and social functions of the library. This step seems likely to be taken when library administrators are convinced that psychologists can contribute professional services of sufficient value to the library to justify the expense incurred in their employment.

The most significant impetus given to application of professional psychological services in the library field was the addition in 1936 of a consulting psychologist to the staff of the School of Library Service of Columbia University. This psychologist was originally engaged on a part-time arrangement to assist in the development of a program of objective comprehensive examinations and to lecture on research techniques in a graduate seminar. In 1939, the psychologist was appointed as a full-time member of the faculty of the School.

PSYCHOLOGICAL SERVICE IN LIBRARY SCHOOLS

The specific functions that psychologists may usefully perform in library schools can be illustrated by the following description of the work that has been carried on for a decade in the School of Library Service at Columbia University. This school requires a bachelor's degree from a liberal arts college for admission and upon successful completion of the first-year curriculum grants a bachelor of science degree in library service. A master of science degree in library service is granted to those who complete a program of graduate work. A revised curriculum for the master's degree in librarianship is replacing the bachelor's program, and a new program of studies at the doctoral level is in process of development.

MEASUREMENT

Each candidate for the bachelor's degree must demonstrate competence on a battery of comprehensive achievement tests in addition to course requirements. Examinations in twelve subject areas are constructed each year for this purpose by the examining division of the school. The psychologist serves as technical consultant in test construction, item analysis, and other matters concerned with the development of a scientific testing program. A selected battery of these examinations has been tried out experimentally by a group of cooperating library schools. The examination in cataloging was given to a sizeable group of professional catalogers in large public and university libraries in a cooperative study of the validity of this examination. Shortages of personnel in libraries and library schools during the war and early postwar periods made it necessary to postpone further research studies until conditions become more settled. Meanwhile, the New Jersey Library Association has utilized some of the Columbia examinations to aid in determining eligibility for certification of librarians in that state. Use of these examinations by Civil Service Examining Boards is a probable future development.

INSTRUCTION

The School offers an advanced course of study leading to the master's degree in which the student is required to demonstrate competence in research by submitting an acceptable thesis based on independent investigation. A seminar on "Research Methods and Techniques" for candidates for the master's degree is conducted by the psychologist throughout the academic year and in summer session. Scientific procedures for planning, conducting, and reporting research are surveyed with special application to the library field. The first half of the work deals with selection and formulation of a problem, development of hypotheses, strategical methods of attack, principles and methods of sampling, and collection of data. Tests, rating scales, questionnaires, interviews, etc., are studied with respect to their function as instruments in the gathering of data. In the second semester, students are given training in the fundamental statistical techniques necessary for scientific analysis of research data; in the formulation of valid conclusions; in tabular, graphic, and pictorial methods for presenting data; in preparation of the research report for publication.

In response to requests from a group of librarians in the New York area who had heard a paper by Bryan (1939) on "The Psychology of the Reader," an evening course in "Psychological Adjustments" was offered for the first time in 1939. The purpose of this course was to develop insight into readers' personality problems and to aid in the personal adjustment of librarians engaged in readers' advisory work in public libraries and reading guidance in school and college libraries. The demand for hospital librarians, especially for service in the Veterans' Administration, increased sharply as a result of the war and the School began to offer training in this field. The course in psychological adjustments, under the title "Psychological Foundations of Reader Guidance," was broadened to include material adapted to the needs of librarians working with patients in mental hospitals. Theories of personality development and psychotherapy as reflected in current research and practice are discussed with special reference to their bearing on reader stimulation and guidance. Attention is given to the use of bibliotherapy both in preventative mental hygiene and as an aid in psychotherapy.

The psychologist also teaches a course, open to first year as well as advanced students, in "Applied Psychology for Librarians" aimed at acquainting future administrators with the possibilities for practical utilization of psychology in the solution of library problems. Among subjects covered are individual differences, aptitude and personality testing, learning and training, efficiency, monotony and distraction, illumination and ventilation, the safety and health of the worker, specialization and standardization, supervision and evaluation, incentives, worker satisfaction and morale. Before the School was affected by war shortages in students and staff, an advanced seminar for readers' advisors was conducted jointly by a professor specializing in this field and by the psychologist. Principles and practices of individual and group guidance were studied with special reference to problems of library patrons. Participation with other members of the faculty in planning and conducting a bimonthly colloquium for graduate students gives opportunity for further exchange of ideas. At these meetings, guest speakers from other fields report informally on their own research and on special projects of contemporary interest and significance for librarians.

GUIDANCE

In a profession such as librarianship, which is concerned largely with direct service to individuals, a well adjusted personality is essential to effective work. The School makes every effort to select for admission applicants who appear to be emotionally mature and capable of dealing successfully with other people. Instructors rate all students regularly on a number of personality traits and the administration provides such guidance as may seem indicated. The psychologist serves this program as interviewer of students presenting special problems and makes recommendations to the administration for the application of measures designed to effect better adjustment.

PSYCHOLOGICAL SERVICE IN LIBRARIES

Constant use is made of psychological knowledge and techniques in carrying on the activities of public, school, college, and specialized libraries. The activities which depend most specifically for effective performance upon psychological practice are: (1) analyses of interests and needs of potential and actual library users, (2) selection of materials best adapted to serve present and future needs of library patrons, (3) arrangement of these materials to make them most attractive and most easily accessible to the users, (4) selection, training, and adjustment of

library personnel to render optimal service to library patrons and to the community at large, (5) education and guidance of readers toward maximal utilization of library resources, (6) provision and maintenance of community services, such as facilities and leadership for group activities, (7) publicizing of library services and resources to increase patronage and community support, (8) evaluation of library services and resources to maintain and increase their effectiveness and value.

Specific psychological techniques employed in libraries as aids in performing these activities include interviewing, administration of tests and rating devices, planning of reading programs, educational and vocational guidance, bibliotherapy, client studies, job analyses, efficiency studies, surveys of community needs and public opinion surveys. Library practice also has been considerably influenced by research findings of psychologists in such fields as reading, learning, motivation, and interests of children and adults.

Librarians as a group are interested in the suggestions psychologists may have for their profession. Radio research, adult learning, reading efficiency, curriculum planning, and personality adjustment are topics of addresses by psychologists before librarian gatherings which indicate the orientation of librarians toward psychology as a source of information. Other specific areas in which psychologists have been asked to state how the service of libraries might be improved include bibliotherapy, adjustment of library personnel, techniques of interviewing, psychological book selection, reader guidance, and library publicity.

A LIBRARY GUIDANCE EXPERIMENT

During the depression years, the Saint Paul Public Library in Minnesota experienced heavy demands for occupational material and for vocational advice and mobilized its resources in every way possible to meet them. An occupational guidance service was set up in the library with a vocational counselor to confer with young men and women of from seventeen to twenty-seven years of age who were out of school and out of work. This guidance followed standard counseling procedure. Psychological tests of vocational aptitude, mechanical, clerical, and reading ability, interests and social adjustment were used. On the basis of test results and personal data, the counselor made recommendations for occupational and other reading to meet individual needs. The implementation of the reading program was the responsibility of the librarian.

Loehr (1941) reported that during the first 20 months after its opening, the service was used by 480 young men and women, in spite of the fact that the counselor was available at the library only two afternoons a week. Employers in the city were enthusiastic supporters of this program in the library and a number of young people found jobs as a result of this interest. The library staff was convinced that the service should be a permanent part of the library's program.

A COOPERATIVE LIBRARY EXPERIMENT IN CIVILIAN MORALE

During the period of national emergency preceding the entrance of the United States into World War II, four national organizations launched a cooperative project to strengthen civilian morale through a series of Film Forums presented in public libraries in strategically situated sections of the country. The project was conducted by the Joint Committee on Film Forums, composed of representatives of the American Library Association, the American Association for Applied Psychology, the American Association for Adult Education, and the American Film Center. The work of the Joint Committee was financed in greatest part by a grant of two thousand dollars from the Carnegie Corporation. Supplementary grants were made by the American Library Association and by the American Association for Applied Psychology, while valuable administrative and editorial aid was given by the two other interested organizations.

The Film Forum is an interesting new discussion technique which offers most promising possibilities for adult education. As worked out for the library civilian morale project, each program of the series included the following features:

1. An informal introductory statement, by the forum leader, of the problem under discussion.
2. The showing of one or two carefully selected documentary or fact films, presenting various aspects and points of view toward the problem to be discussed.
3. A discussion period, under the guidance of a competent leader, during which members of the audience explored together the problems raised by the films, with particular reference to their implications for the preservation and extension of the democratic way of life.
4. An "audience quiz," or attitude test, checked by those present. This served to provide infor-

mation for evaluating the program in terms of audience reaction. A scale for rating the films shown was also used in some libraries. These tests were constructed and analyzed by the psychologists on the committee.

5. An attractive and interesting exhibit, prepared by the public library, of books and other reading materials available for follow-up study of the issues raised by the discussion.

After the United States entered the war, the project was broadened to include a group of college and university libraries. Emphasis then was directed toward mobilizing civilian energies for waging total war and insuring a genuine and lasting peace. Work on the project continued for a period of three years, from the organization of the Joint Committee in January 1941 to the publication of its final report on the experiment in November 1944. During this time, as reported by Bryan (1943), a total of 273 forums were presented by 40 different libraries, with an estimated total attendance of 15,578 persons. In addition, 1,264 librarians and other interested persons attended 13 demonstration Film Forums presented at professional meetings in various parts of the country. At the close of the project, the Joint Committee on Film Forums was enlarged to include other interested organizations and reconstituted as the National Committee on Film Forums. An outcome of the library project was a new journal, Film Forum Review, started in the Spring of 1946 by the Institute of Adult Education, Teachers College, Columbia University, in cooperation with the National Committee.

CONSULTATION

An appropriate function for the psychologist within the organizational structure of the modern library is that of special consultant to the administration, the staff, and the library clientele. Libraries require the services of specialists with training in psychological practice to administer and interpret tests of intelligence, reading comprehension, interests, and personality to patrons of the readers' advisory service who wish to take such tests. Where a testing service is available, the librarian can be given knowledge of individual needs, reading motivation, and ability to learn; and will thus be in a far more advantageous position to plan reading courses for patrons and to discuss their personal problems and progress. The psychologist can serve the library as a consultant on staff problems, particularly in situations where personality difficulties interfere with harmonious functioning. Libraries are much concerned with the problem of devising adequate and reliable methods for rating staff members and of determining their readiness for promotion to a higher level of service. In these matters, the psychologist can offer practical assistance.

RESEARCH

The library profession is research-minded. In his presidential address to the American Library Association in May 1940, Ralph Munn stressed the need that libraries have for objective research studies of every kind to enable them to respond effectively to changing needs and new social and economic pressures. He emphasized particularly the importance of obtaining facts about reading habits and abilities of borrowers; the basic needs of the community and their relative importance; and the obligations, interests, and resources of other community agencies, and the possibility of cooperation with these agencies. Here the psychologist can assist in conducting surveys of community needs, readers' interests and attitudes, and the relative effectiveness of various policies and practices of library administration. Thus, an analysis of adolescents' reading by Kennedy, a librarian, and Cornell, a psychologist, indicates a need for more guidance for the individual reader, since the quality of the reading and the discrimination shown by adolescents, particularly those of superior ability, was poorer than had been expected (Cornell, 1941). An experimental study of the legibility of Library of Congress cards and their reproductions (Bryan, 1945) provided evidence that six catalogers using the original printed L.C. cards can accomplish as much work, with a smaller percentage of errors, than seven catalogers using the bound reproductions that were intended to replace the cards. In the spring of 1947, the Librarian of the State of New York requested Bryan to make a study of the data gathering forms and reports of the State Library Extension Division and to conduct a survey of public library personnel in New York State. These studies, when completed, will provide facts needed for effective postwar planning. During 1947–1948, three psychologists were employed to undertake research projects for the Public Library Inquiry of the Social Science Research Council and a fourth was asked to serve on the Advisory Committee for the Inquiry. Likert (1947) made a public-opinion survey of attitudes toward and use of the public library in sixty communities of varying types and

sizes throughout the United States. Bryan (1947) used personal visits, interviews, questionnaires, personality and interest tests to gather data on personnel and personnel administration in the public libraries in these sixty communities. Pierce (1947) made a study of technical processes in the same libraries, using personal observation, interviews, questionnaires, and time studies. Marquis served on the Advisory Committee for the Inquiry. The psychologists carrying on these three research projects worked in cooperation with other social scientists on the Inquiry staff, with the object of providing a comprehensive analysis and evaluation of the American public library as an agency of communication in contemporary society. The Inquiry was financed by the Carnegie Corporation at the request of the American Library Association.

CLASSIFICATION OF PSYCHOLOGICAL LITERATURE

Louttit (1941) described the contributions of Warren, Poffenberger, and Willoughby to the classification of psychological literature and presented a system of his own which recognizes more adequately the unique complexities involved in such classification. Louttit's *Handbook of Psychological Literature* (1932) is a useful tool for librarians. In 1944, at the request of the Emergency Committee on Psychology of the National Research Council, Bryan called a conference of representatives of the Library of Congress and of Army and Navy psychologists and prepared a report on the Library Classification of Psychological Tests. The Emergency Committee then referred the matter to the American Psychological Association with the recommendation that it appoint a committee to carry on further study of this problem after the war.

PROFESSIONAL COOPERATION

The library profession depends in considerable degree upon other professions to accomplish its objectives. Important among these is psychology, which contributes techniques of analysis of human relations and the specialists to use these techniques. The American Association for Applied Psychology appointed a "Committee on Relations with the Library Profession" in 1938 and the American Library Association then formed a joint committee to extend this cooperation between the two professions. In commenting on the activities undertaken by the joint committee, Charles H. Brown, President of the American Library Association in 1941–42, summed up the need for cooperation between librarians and psychologists as follows: "There are some very important functions for this Joint Committee, especially in emphasizing certain fundamentals in the training of librarians. Librarians need more psychological background than we are now getting, more knowledge of scientific management, more knowledge of testing for student assistants and nonprofessional assistants, more knowledge of handling reference inquiries and the public in general." Until 1946, when the American Association for Applied Psychology became a part of the reorganized American Psychological Association, this joint committee occupied a strategic position in the promotion of professional psychological services in libraries and library schools. The report of the Public Relations Committee of the American Psychological Association for 1947 includes a recommendation that the work of the joint A.L.A.-A.A.A.P. committee be continued by appointment of a new joint committee by the American Library Association and the American Psychological Association.

READING REFERENCES

Bryan, A. I., "Psychological Service in the Library Field." *Journal of Consulting Psychology*, 1942, **6**, 73–77.

Herbert, C. W., *Personnel Administration in Public Libraries*. Chicago: American Library Association, 1939.

Joeckel, C. B. (ed.), *Current Issues in Library Administration*. Chicago: University of Chicago Press, 1939.

McDiarmid, E. W., *The Library Survey; Problems and Methods*. Chicago: American Library Association, 1940.

Martin, L. (ed.), *Personnel Administration in Libraries*. Chicago: University of Chicago Press, 1946.

Waples, D., *Investigating Library Problems*. Chicago: University of Chicago Press, 1939.

96. THE SOCIAL AGENCY

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Social agencies have made rapid development during the past decade in specialization of function and refinement of concept and procedure in adjustment of human relations. At the same time, social workers have increased their use of specialized techniques from other fields. Agencies, in the process of developing programs for their clients, or for community groups, often incorporate in these programs, services provided by other professions. Rapid development in variety and refinement of psychological techniques has recently furnished a wealth of new help to the social case worker. In the initial stage of her contact with the client the worker is able to provide herself with an understanding of his problem, needs, and resources which formerly was achieved only after hours of exploratory case work. The time spent on remedial work is often shortened by employment of specialized treatment techniques. Social psychology provides help for the agency engaged in group work. It is impossible for a busy administrator or case worker to keep informed of all new psychological development and to study means of adaptation of these developments to social work. The psychological consultant functions on the agency staff, to keep administrators and case workers advised of latest developments and to provide professional services for individual clients when necessary.

SUPERVISORY FUNCTIONS

GENERAL FUNCTIONS

Agencies may be public or private. The executive to whom the consultant is responsible in a private agency is the executive director. In a public agency it may be a probate judge, a state or county director, or a case work supervisor. In the following paragraphs this executive will be referred to as the supervisor.

The consultant works under the supervisor of the agency and is responsible for development of a program of psychological techniques and services as an aid to sound social work planning. The consultant is further responsible for the stimulation of the use of the psychological program by members of the staff. The consultant supervises new additions to the psychological library and is responsible for incorporation of new psychological techniques in the program of the agency.

STAFF TRAINING

In collaboration with the supervisor the consultant conducts a consistent program of staff training. The staff's understanding of personality and its expression in human behavior is enriched as rapidly as scientific progress permits. Case workers are trained by the consultant in the administration of certain types of tests and remedial techniques. Understanding and interpretation of psychological reports and data are furthered. Group work agencies are furnished with techniques for analyzing complex group and community situations and for discovery and development of leadership. New concepts in the field of psychology are explained and evaluated for the staff. Adaptation of these concepts to social work is clarified. This training program is carried on through participation in staff conferences; organization and conduct of seminar periods; evaluation of records and reports; individual interpretive work with case workers; and joint programs by which case workers and consultant progressively work together through analysis and solution of a client's problem in special cases. Reference material, selected and interpreted by the consultant, is furnished to the staff in short reading courses.

PSYCHOLOGICAL PERSONNEL

If the agency staff includes psychometrists or psychological specialists, such as vocational counselors,

speech pathologists, or remedial teachers, the consultant is responsible for over-all supervision of their programs and in-service training whenever needed. The consultant also assists the supervisor in developing appropriate qualification standards to be met by applicants for these positions.

SPECIALIZED AGENCY PROGRAMS

In many communities, social agencies develop specialized social work services adapted to specific local needs or situations. In connection with such programs the supervisor may use the services of the consultant in developing specialized psychological services carried on within the agency or even extending into the community. Psychological services within these specialized programs often need interpretation to other agencies and to the community at large. The consultant assists the supervisor in developing interpretive material and in its presentation.

RESEARCH

Psychological research is one of the most valuable sources for enrichment of the program of a social agency. Problems brought to the agency by its clients provide inexhaustible material for this work. When opportunities for research arise, the consultant calls them to the attention of the supervisor. If the work is undertaken, the consultant takes responsibility for organizing and supervising the research program. The work of a social agency provides opportunity for research in marital relations; in behavior problems of children; in environmental treatment of personality problems; in unusual trends of personality development as they are related to the family setting; and in social behavior of individuals and groups.

CLINICAL CONTRIBUTIONS

PSYCHOLOGICAL STUDY

The clientele of a public or private case work agency includes a number of clients who need exhaustive and specialized diagnostic study through psychological tests and clinical measurements. These clients include those who are physically disabled through blindness, deafness, birth injury, infantile paralysis, and other disabling conditions and accidents. Included also are those who are psychologically disabled through speech defect, mental retardation, emotional trauma, and personality disorders as well as those psychologically hampered by special ineptitudes, economic disabilities, or environmental pressures. The consultant is versed in types of measuring devices whose administration permits analysis and evaluation of disabled individuals' potentialities and their translation into terms of possible remedial programs. When the study has been completed, its results are interpreted to the case worker; the case worker and the consultant then develop jointly a program suited to the needs of the client and adapted to the resources of the agency. This program may consist of remedial case work and/or remedial psychological work with the individual. Controlled environmental changes may be indicated and there may also be a need for securing specialized service from another field or referral to another agency. Clinical services to a group work agency will include sampling and studies of groups and group activities.

REMEDIAL TECHNIQUES

The supervisor may ask a consultant to conduct critical interviews with or without the accompanying presence of a case worker. The supervisor may ask that the consultant outline interview objectives for case workers and make suggestions as to interview approach to specific problems.

A remedial program may include specialized techniques such as play therapy, spatial reorientation, speech training, or other remedial techniques devised by the consultant to fit an individual need. These specialized techniques are administered by the consultant or by the case worker under the training and supervision of the consultant. Progress during the remedial program is discussed with the case worker and interpreted to her. It may be necessary for the consultant to suggest that the course of the total case work program be changed to accord with the client's progress during the remedial work. In all of these individual clinical cases the consultant maintains the closest rapport with the case worker and is assured that the case worker understands the objectives and operation of the remedial techniques at each step of the program.

VOCATIONAL GUIDANCE

The consultant gives direct clinical aid to the supervisor by making vocational studies of applicants for positions within the agency and developing job analyses. Guidance may be needed from time to time to assist employees of the agency to improve their adjustment to their work situation. Vocational guidance is also offered as a service to employees who do not make a good adjustment and who are leaving the agency to seek other positions for which they may be better fitted.

PUBLIC RELATIONS

REFERRALS TO OTHER AGENCIES

If the client of a case work agency is to be referred to another agency, the consultant is responsible for whatever report is made to the new agency of psychological findings which precede the referral. If interpretation of the report to the new agency is indicated, this is done by the constulant, who may also be asked by the supervisor to interpret recommendations which may be made to the new agency at the time of referral.

REFERRALS FROM OTHER AGENCIES

Reports of psychological findings made by other agencies at the time of referral are evaluated by the consultant and interpreted to the staff with evaluation of the reports' significance for program planning by the agency that is accepting the client.

DATA FROM OTHER AGENCIES

Requests to other agencies for psychological data are made by the consultant. Case workers are assisted by the consultant in the interpretation of such data as school records and reports from courts and institutions.

INTERPRETATION TO OTHER AGENCIES AND TO THE PUBLIC

Psychological service and procedures incorporated into the program of an agency must be interpreted to other agencies and to the public. The consultant assists in interpretation by participation in joint case work conferences between his own and other agencies, and by personal interpretation of reports and programs. When occasion arises, the consultant interprets directly to the public by means of addresses at public meetings or by preparing publicity material which pertains to the psychological program of the agency. Directed by the consultant, a survey of public opinion may be a valuable tool to an agency in developing its public relations.

ADAPTATION TO SOCIAL WORK

TRAINING OF THE CONSULTANT

A consultant who expects to work on the staff of a social agency should become familiar with the general concepts underlying social work either by means of an orientation course, by a period of observation and in-service training, or through reading directed by an agency supervisor. The consultant's entire period of contact with an agency should provide increasing understanding of the problems of social work, the methods employed to meet them, and the resources of the agency in which he works.

DEVELOPMENT OF TECHNIQUES ADAPTED TO PROBLEMS IN SOCIAL WORK

A consultant becomes increasingly effective in the social work field as he develops examining and remedial techniques especially adapted for use within the framework of social agencies. Social workers are able to take better advantage of the work of the consultant if the development of new techniques can follow lines which conform to social work concepts and procedures. The results of a diagnostic study carried on in terms of reactions to pictures and controlled interview techniques will be easily comprehended by a case worker because she is familiar with interviews as an exploratory technique. She is already trained to understand interpretation of a client's behavior in terms of personality trends. A similar diagnostic study, carried on by means of measuring instruments whose results are expressed in terms of statistical deviation from the norm might have the same significance to the psychologist as the study through interview had, but the social worker will find the statement of the results less comprehensible. This will make it difficult to achieve an interpretation that will permit the social worker to realize clearly the relationship between the objective results of the study and their significance. A consultant who works with social agencies develops facility in adapting his own choice and construction of techniques to the social work field. Skill in this adaptation insures success in bringing the psychological program to its greatest possible usefulness.

READING REFERENCES

Martin, L. J., *A Handbook for Old Age Counsellors.* San Francisco: Old Age Counselling Center, 1944.

Rand, W., et al., *Growth and Development of the Young Child* (4th ed.). Claremont, Cal.: Saunders Press, 1946.

Rogers, C. R., and J. L. Wallen, *Counseling with Returned Servicemen.* New York: McGraw-Hill Book Company, Inc., 1946.

Symonds, P. M., *The Dynamics of Human Adjustment.* New York: Appleton-Century-Crofts, Inc., 1946.

Traxler, A. E., *Techniques of Guidance.* New York: Harper & Brothers, 1945.

97. THE VOCATIONAL COUNSELOR

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"Vocational guidance is the process of assisting the individual to choose an occupation, prepare for it, enter upon and progress in it." (National Vocational Guidance Association, 1937.) As a professional service it originated in 1908, with the establishment by Frank Parsons, in Boston, of a bureau devoted specifically to helping young people choose occupations and plan careers.

HISTORY

In his book, *Choosing a Vocation* (1909), Parsons stated that the vocational counselor should assist the individual in arriving at: "(1) a clear understanding of himself—his aptitudes, abilities, interests, ambitions, resources, limitations, and their causes; (2) a knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in various lines of work; (3) true reasoning on the relation of these two groups of facts." In carrying out the first of these undertakings, Parsons proposed that certain techniques of the psychological laboratory would facilitate the process: measurement of sensory acuity, reaction times, intelligence, speed of reading.

PSYCHOLOGICAL PRACTICE IN VOCATIONAL GUIDANCE

Since the establishment of Parsons' bureau, a large number of agencies have undertaken vocational guidance: schools and colleges, social service agencies, employment offices, Veterans Administration, etc. While all of them use psychological techniques to some extent, it is important to note that counselors do not regard the psychological aspect of vocational guidance as wholly determinative in the advisement of an individual. They examine the individual from all points of view: physical, social, economic, as well as psychological, and they examine the occupations in the same comprehensive manner.

Psychological examination of the individual and of the occupation is taken care of in three ways in various vocational guidance bureaus: there is a psychologist on the staff of the bureau; a psychologist from a psychological clinic or in private practice is used as a consultant; the vocational counselor has psychological training and serves the bureau in the capacity of psychologist. This latter situation is common in vocational guidance bureaus for routine psychological examination, as psychological training is emphasized in the requirement of vocational counselors. The New York State Department of Education, for example, requires that all bearers of its certificate issued to school counselors shall have taken the following courses: introductory and educational psychology, measurement of intelligence, aptitude and personality tests, and mental hygiene.

PSYCHOLOGICAL TECHNIQUES EMPLOYED

INTELLIGENCE TESTS

Most vocational guidance bureaus use intelligence tests in psychological examination. True, a score in a general test does not point to any specfic occupation which the individual should enter, but it serves as a criterion for certain decisions which are to be made. Thus, an individual whose score is not well above that of the average of the population would be warned against considering an occupation requiring a college education, for ample data exist indicating that probably he would not be able to do work of college grade.

Intelligence levels have been indicated which are characteristic of specific occupations. The investigations concerned with them have yielded average or median scores on intelligence tests made by occupational groups such as physicians, barbers, railway conductors and teachers. An individual whose score is well below the average for the population of the occupation of his choice probably would be warned against preparing to enter it. Fryer and Sparling

(1934) suggest that the score ranges of the middle distributions of the workers in an occupation represent the preferential range for success. But these scores assist very little in counseling an individual as to entrance into a specific occupation, for one with a given score might successfully enter a dozen or more fields of work.

The intelligence score made by an individual may contribute to an understanding of his general behavior. It is particularly useful in educational guidance: as an index of the quality of intellectual work that may be expected; as an aid in classifying students; as an aid in estimating how long an individual is likely to remain in school.

VOCATIONAL APTITUDE TESTS

A limited number of vocational aptitude tests is available to predict capacity for future development in specific occupations such as typing, selling, and engineering. The reliability of many of these tests has not been computed; many reliabilities reported are low; the validity of many tests is also in question.

Vocational aptitude is not stressed in vocational guidance, for other factors determine success to a degree that if measurement of this aptitude were technically perfect, aptitude tests would contribute little to the solution of the vocational problems of any individual. Of 4,000 discharged workers, the greatest number were discharged not for inaptitude or incompetency but for failure to make social adjustments (Brewer, 1927). Vocational counselors use scores on vocational aptitude tests chiefly for "hunches" or for verification of their guesses derived from nontest data in view of the imperfections of available tests. For example, if a counselee makes consistently high scores in several manual manipulative tests, and has a history of successful manipulation of gadgets, the counselor feels warranted in assuming that he is clever with his hands and might succeed in jobs such as assembling, packing, and wrapping.

MEASUREMENT OF VOCATIONAL INTERESTS

On the assumption that an individual should choose an occupation in which he is interested, vocational counselors seek to determine in what occupations the individual is interested. Parsons submitted a questionnaire to his counselees in which he asked what occupation they preferred. With the hope that interest in nonvocational activities might provide additional clues, he also questioned them concerning types of literature read, games enjoyed, and other forms of recreation. This indirect approach was later elaborated in inventories, such as Strong's Vocational Interest Blank (men and women), Manson's Vocational Interest Blank for Women, Kuder's Preference Record, Cleeton's Vocational Interest Inventory. These blanks are scored to indicate whether or not a person has interests similar to those held by persons who are working successfully in an occupation. The practical value in vocational guidance of scored interest inventories is limited, for the number of occupations for which occupational scoring keys are available is only a fraction of the thousands followed by workers. But it is alleged as additional support of their use that counselees who fill out vocational interest blanks go through a healthy exercise of introspection regarding a career. Blanks prepared for interest orientation, such as Aids to the Vocational Interview, Hoppock's Check List for Self-Guidance in Choosing an Occupation and Hoppock's Check List of Occupations, are useful for this purpose.

Much investigation of vocational interests assumes that every individual has an interest in some occupation and that this interest is relatively stable. Most youths, however, are not seriously interested in any occupation, and they are not realistic in the interests they claim to hold. Moreover, vocational interests may be unstable and they may fluctuate over periods of time (Fryer, 1931; Strong, 1931). Good practice assumes that the counselee develops interests and that scores on interest inventories indicate, at best, the stage of development reached at the moment. It has been suggested by Kitson (1942) that one task of the vocational counselor is that of helping perplexed youth to become interested in occupations which seem to be suitable when viewed in the light of all psychological, physical, social and economic factors. Sound rules for rendering this service are given by William James in *Talks to Teachers* (1900): secure information about the object; and arouse activity toward it. Some vocational counselors apply these rules through the use of tryout experiences, curricular and cocurricular activities, diversified occupations programs, courses in occupations, visits to industrial plants, and other interest-generating stimuli. Autobiographies written by counselees and anecdotal records are further means of helping individuals to develop and crystallize occupational interests.

VOCATIONAL PROFICIENCY TESTS

Only occasionally are vocational proficiency tests for selecting trained and experienced employees used in vocational guidance. Vocational counselors concerned with the placement of workers in a specific occupation, e.g., in the clerical field, administer a proficiency test to see if the counselee can reach the speed and accuracy required in business offices.

EDUCATIONAL ACHIEVEMENT TESTS

Standardized tests of achievement in academic subjects are important instruments in educational guidance for classifying students (in school and college), for measuring levels of achievement successively attained by the learner, and for discovering hindrances to academic progress. Their bearing on an individual's choice of occupation is illustrated by the practice of giving a college student who expects to enter medicine an achievement test in biology, physics and chemistry which is predictive of success in medical school. Scores on achievement tests in physics and mathematics are indicative of success in engineering school.

RATING SCALES

Rating scales frequently are used in vocational guidance. In some schools and colleges, each student is periodically rated by teachers along a continuum from high to low on various qualities such as cooperativeness, originality, and trustworthiness. The ratings are entered on the cumulative record blank of the student and referred to by counselors when dealing with the case.

OCCUPATIONAL ANALYSIS TECHNIQUES

As stated earlier in discussing the organization of psychological service in vocational guidance, it is necessary to assemble information regarding the requirements of the occupations, conditions of work and the rewards possible in them.

Through its contributions to the technique of job analysis, psychological research aids in revealing skills required for proficiency in vocational performance. A considerable amount of research has been directed toward the discovery of intelligence requirements for successful performance in various fields of work. A still greater amount of effort has centered on search for the aptitudes and character traits required in occupations. This approach is best illustrated by the research undertaken by the University of Minnesota Employment Stabilization Research Institute (1931–34) where occupations were analyzed in terms of measured characteristics of workers in the occupation—to be matched by an analysis in the same set of terms of any individual who aspires to work in that occupation. The scores made by a particular group of workers became the basis of an "occupational ability pattern." Such patterns have been prepared for office clerks, garage mechanics, retail salespersons and policemen from scores made on tests as follows: Pressey Senior Classification, Minnesota Clerical, O'Connor Finger and Tweezer, Minnesota Mechanical Assembly, Minnesota Manual Dexterity, Minnesota Spatial Relations (Dvorak, 1935, 1942).

Hull (1925) recommended the use of a single universal battery of tests for the measurement of traits of persons in the various occupations. On the basis of this one battery there should be constructed, according to Hull, separate formulae for each of the more important (40 or possibly 50) type occupations. Hull devised a machine into which the formulae would be set. The scores earned by a counselee would be placed in the machine, which would in a short time turn out a set of forecasts indicating the individual's probable success in all the type occupations.

The questionnaire method of identifying traits called for in jobs, first employed by Lipmann (1916), was elaborated by Viteles (1922) in the form of the "job psychograph" in which a job, such as cotton winding, is set forth in terms of a standard set of traits: energy, endurance, persistence, etc. Each trait is rated on a 5-point scale: negligible on this job, barely significant, significant, of great importance, of utmost importance. An individual receiving vocational guidance is rated in respect to the traits called for in the occupations he is considering.

Charters' and Whitley's (1924) list of duties which secretaries perform and specific traits which they should possess was used as a basis for preparing job specifications and training curricula. Time and motion studies of minute elements of a job, illustrated by Gilbreth's researches (1911, 1917), utilize laboratory techniques involving kymographic and cinematographic records. The results of investigations by this method are used chiefly in training the individual for the job. In the light of methods developed by the Occupational Analysis Section of the US Employment Service, the analysis of occu-

pational activities has been standardized on a practical plane (Shartle, 1946).

Occupational information is essential in vocational guidance, and occupational information in terms of measured psychological requirements is most useful. It is the counselor's task to relate the test abilities of the counselee to the requirements of occupations, and he uses such information as is available for this purpose from the occupational analyses indicated above.

EMPHASIS ON BEHAVIOR

Naïve users of psychological tests in vocational guidance are inclined to overvalue the numerical score. Vocational counselors claim that the testing situation provides opportunity to observe the counselee's behavior under controlled conditions where deductions perhaps of greater significance can be made. Bingham (1937) emphasizes this point and recommends the use of an Examiner's Check List which facilitates the keeping of notes descriptive of behavior: whether the subject approaches the task with deliberation or speed, whether he concentrates well or poorly, works systematically or not, asks help, notices his mistakes, whether he appears irritated or calm, etc. According to many psychologists such observations are more revealing of behavior than scores, and they give point to the contention that tests and other psychological instruments utilized in vocational guidance should be administered only by examiners trained to interpret qualitative as well as quantitative results.

PROCEDURE OF A PARTICULAR BUREAU

A brief description of the practice in the Vocational Advisory Service of New York City, will give a picture of the way in which psychological measurements are integrated with other data in vocational guidance. This bureau provides vocational guidance for youth between sixteen and twenty-five. It includes a psychological department, in charge of a psychologist, with a staff of four psychological examiners, and also clerks and statistical assistants.

A counselee accepted by the agency is turned over to one of the ten vocational counselors on its staff. The counselor assembles all pertinent information from school records and from the referring agency before the first interview. The aim in this interview is to define the problem or problems faced by the counselee. After this interview the counselor decides, in consultation with a member of the psychological department, which tests shall be administered. The tests given are those deemed likely to throw light on the counselee's abilities and potentialities, and his emotional and temperamental status. They are chosen from the following: O'Rourke Vocabulary Test, Verbal Reasoning and Verbal Perception, Otis Self-Administering, Minnesota Clerical, Simple Posting, Complex Classification, Filing, Arithmetic, Spelling, Minnesota Spatial Relations, Revision of Kohs Block Test, O'Connor Wiggly Block, O'Connor Finger Dexterity Board, O'Connor Tweezer Dexterity Board, Ziegler Placing and Turning Board, Revision of the I.E.R. Girls' Mechanical Assembly Test, Stenography and Typing Tests. A questionnaire designed to give some indication of emotional development is filled out. The psychological examiner analyzes results of examination and submits a written report to the vocational counselor.

After all pertinent data about the individual are assembled on the counselee's record there is a conference participated in by vocational counselor, psychological examiner, and a representative of the referring agency. Recommendations are formulated and a plan outlined for submission to the counselee. In succeeding consultation periods the counselor facilitates the prosecution of the plan. This organization, in common with other vocational guidance bureaus, makes use of the cumulative record, which follows the individual over a period of years.

APPRAISAL OF RESULTS

One of the most thoroughgoing studies to evaluate the usefulness of psychological procedures in vocational guidance was made in Birmingham, England (Allen and Smith, 1932), where 328 school leavers were given vocational advisement with the aid of psychological tests and 328 were advised without being tested. All were investigated two or more years after entering their industrial careers. Sixty-one per cent of the experimental group entered occupations in harmony with the advisement; 49 per cent of the others (the control group) did so. The members of the experimental group retained their positions in greater proportions: experimental boys, 21 per cent; control boys, 7 per cent. Ninety per cent of the experimental children who entered recommended positions felt they were suitably placed, whereas 79 per cent of the control children reported satisfaction. This evidence, and that of other studies appraising the value of tests in vocational guidance, imply that psychological tests properly used facilitate the process.

PROFESSIONAL PURPOSE

In judging concerning the applicability of certain psychological techniques the peculiar purpose of vocational guidance should be kept in mind.

GUIDANCE VS. SELECTION

Vocational selection is the process of selecting a person for a particular job, such as winding armatures or pasting labels on bottles; vocational guidance is the process of helping an individual to plan his career. Inasmuch as psychological techniques may be applied in both situations it has sometimes been assumed that a test designed for selection has equal value in guidance. Such an assumption is not warranted. While a test might indicate that a particular girl could perform the work of cashier successfully, she perhaps should not enter this work because of limitations of a nonpsychological nature; or she might be more successful and satisfied in another job. Thus the results of a selection test are of limited value in giving guidance.

Some have argued that a selection test might have negative value in guidance, for if an individual's score in a selection test were unsatisfactory it would indicate that he should not enter the occupation. The force of this argument is granted, but one must also admit that under such circumstances the vocational problem of the individual would remain unsolved. He would still be obliged to consider the suitability of several thousand other occupations. As early as 1913 Leonard Ayers wrote: "The greatest field . . . for psychological tests is in choosing persons for positions rather than in selecting positions for persons." All the evidence since that time supports this statement.

Vocational guidance and selection profited much from the work of the Personnel Division of the United States Army in World War I, and received further impetus from the widespread use of psychotechniques in the Armed Services during World War II. At the close of the latter conflict, vocational guidance was made a routine service in the 52 "Facilities" of the Veterans Administration. In addition, centers were established in about 300 colleges and universities, jointly supported by the Veterans Administration. These efforts required the employment of large numbers of vocational appraisers and psychologists and gave impetus to a more widespread demand for vocational guidance throughout the entire country.

VOCATIONAL COUNSELOR ESCHEWS PREDICTION

A false impression regarding the value of psychological measures in vocational guidance has been created by the stress which some psychologists have laid on prediction from test scores. It is true that a psychologist employed by a department store may predict from a test score whether an applicant might be able to succeed as a cashier (vocational selection). But to carry such prediction into vocational guidance is unwarranted. Vocational counselors stoutly maintain that the individual is arbiter of his own fate; his motivation comes from within. They decline to make decisions for him, and they refuse to use any instrument in a way that would prevent his self-determination.

They insist further that the counselor should not be expected to predict the occupational future of the individual. The counselor role is best described as a service: helping the individual to plan a career. William James (1890) said: "It is safe to assert that vocational histories will never be written in advance, no matter how highly evolved psychology may become." Empirical substantiation of this statement is found in results reported by Thorndike (1934).

SUMMARY AND CONCLUSIONS

Throughout the history of vocational guidance, psychological techniques have had a recognized place. The extravagant hope of the earlier decades that test results would tell an individual what occupation he should choose, though still cherished by the man is the street, has been discarded by vocational counselors. Present theory and practice favor the view that in helping an individual to plan his career intelligence scores will aid in making important decisions regarding occupations, amount and kind of general education and technical training which the individual can absorb. Educational achievement tests assist the individual in planning his academic career and throw light on his likelihood of success in occupations to which certain academic subjects are fundamental. Explorations of interests and devices for stimulating interests are valuable. Proficiency tests are used chiefly in the placement of individuals in jobs or in the ascertainment of their readiness for placement.

While much psychological research has been directed toward the isolation of objective qualities required of workers in various jobs, the job descriptions most commonly used in advising counselees

are still those derived from observation and questioning of workers and employers.

The vocational counseling of an individual ideally involves the services of physician, social investigator and psychologist. The data from all these and other sources are assembled and collated by the counselor and used as the basis for conferences with the counselee.

Vocational guidance is not and never will be a science. It has many elements of an art, but more of a technology. It embraces certain contents and methodologies of psychology, sociology, economics, and education, but it is more than a mere aggregate of these disciplines. It is a technology for stimulating individual development, with techniques just as distinct as those in engineering, social work and dentistry.

READING REFERENCES

Allen, P. E., and P. Smith, *The Value of Vocational Tests as Aids to Choices of Employment*. Birmingham, England: Treasurer's Department, Council House, 1932.

Bergen, G. L.; G. Schneidler; and L. Sherman, *Use of Tests in the Adjustment Service*. New York: American Association for Adult Educational Adjustment, Service Report No. 4, 1935.

Bingham, W. V., *Aptitudes and Aptitude Testing*. New York: Harper & Brothers, 1937.

Crawford, A. B., and P. S. Burnham, *Forecasting College Achievement: Part I. General Considerations in the Measurement of Academic Promise*. New Haven: Yale University Press, 1946.

Culbert, J., and H. R. Smith, *Counseling Young Workers*. New York: Vocational Service for Juniors, 1939.

Dvorak, B. J., "Differential Occupational Ability Patterns." *Bulletins of the Employment Stabilization Research Institute, University of Minnesota*, 1935, **3**, No. 8.

———, "The New U.S.E.S. General Aptitude Test Battery." *Occupations*, 1947, **25**, 42–9.

Fryer, Douglas, *The Measurement of Interests in Relation to Human Adjustment*. New York: Henry Holt and Company, Inc., 1931.

Hildreth, G. H., *A Bibliography of Mental Tests and Rating Scales* (2nd ed.). New York: The Psychological Corporation, 1939.

Keller, F. J., and M. S. Viteles, *Vocational Guidance throughout the World*. New York: W. W. Norton & Company, Inc., 1937, Chap. 8, "Psychological Methods in Vocational Guidance"; Chap. 9, "Psychological Methods for the Analysis of the Individual."

Kitson, H. D., "Creating Vocational Interests." *Occupations*, 1942, **20**, 567–571.

Lorge, I., and R. D. Blau, "Broad Occupational Grouping by Intelligence Levels." *Occupations*, 1942, **20**, 419–423.

———, "Broad Occupational Groupings by Estimated Abilities." *Occupations*, 1942, **21**, 289–295.

Myers, G. E., *Principles and Techniques of Vocational Guidance*. New York: McGraw-Hill Book Company, Inc., 1941.

Paterson, D. G.; R. M. Elliott, et al., *Minnesota Mechanical Ability Tests*. Minneapolis: University of Minnesota Press, 1930.

Shartle, C. L., *Occupational Information*. New York: Prentice Hall, Inc., 1946.

Stead, W. H., et al., *Occupational Counseling Techniques*. New York: American Book Company, 1940.

Stewart, Naomi, "AGCT Scores of Army Personnel Grouped by Occupations." *Occupations*, 1947, **26**, 5–41.

Strong, E. K., *Vocational Interests of Men and Women*. Palo Alto: Stanford University Press, 1943.

Super, D. E., *Appraising Vocational Fitness by Means of Psychological Tests*. New York: Harper & Brothers, 1949.

98. EUGENICS

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Psychology contributes to both the science and practice of eugenics. Eugenists are better informed about the contributions of psychology to eugenic science than to eugenic practice because the contributions to eugenic practice are largely through psychological practice. Psychologists are scarcely aware of the significant part which psychology is playing in the new and growing profession of eugenics.

EUGENICS

Eugenics is concerned with understanding the factors determining or modifying human development in individual differences and with applying the wisdom accrued to improving future generations of human beings. This application with respect to the problems of an individual or a couple is called clinical eugenics; and with respect to the eugenic problems of a whole population, social eugenics. The supporting knowledge and wisdom necessary for eugenic application is a synthesis of contributions from many disciplines, including anthropology, biology, demography, economics, endocrinology, medicine, physiology, psychology, and sociology.

EUGENIC THEORY

Eugenics seeks (1) to promote reproductivity of persons who have qualities socially valuable above the average, and (2) to discourage reproductivity of those below average. No reference is implied in this purpose to class, or caste, or race distinctions, for superior and inferior individuals are found in all these groups. No attempt is made to coerce individuals to have or not to have any particular number of children. The number of children needed for replacement of the population is about three per married couple. It is assumed that there should be public responsibility for extending economic aids and social services to couples who are qualified to have larger families than they can rear on their own incomes. Society has pursued a *laissez-faire* attitude generally in this matter, but it is gradually being oriented toward communal responsibility for its children. Individuals are not to be identified to society as qualified for any eugenic recommendation. Rather, eugenics aims to provide scientific information and to disseminate it through its practice so that individuals themselves will know who are qualified to provide the homes in which most of the children for the next generation should be reared. As a democratic principle, the decision is left to the potential parents themselves. Eugenic theory in America is divorced entirely from certain conceptions popular in some foreign countries, such as developing a race of supermen through compulsory sterilization of the unfit or by artificial insemination.

ROLE OF PSYCHOLOGY

Psychology contributes to (1) eugenic science, (2) clinical eugenic practice, and (3) social eugenic practice. Psychology and biology furnish the means by which the identification of human qualities can be made and by which selective replacement, the goal of eugenics, can be realized. This knowledge of human qualities is disseminated to individuals through psychological and medical practice. Extended psychological and medical practice, however, appear necessary to extended eugenic practice.

Psychological practice contributes through its clinical techniques of tests and rating devices the knowledge necessary for people to evaluate their qualifications for parenthood. Clinical eugenists, however, do not yet appreciate the difficulties and fallibilities inherent in any plan of self-evaluation or self-rating for parenthood; or the hazards, errors, and halo effects of psychological measurement when used by the non-psychologically trained person. Even the

superior individual does not have the professional frame of reference against which to appraise himself; while the inferior individual nearly always requires assistance to gain insight into his parental qualifications. Eugenic consultation is gradually emerging as a specialty of psychological practice in which the eugenic practitioner can secure professional assistance in informing the individual of his psychological qualifications for parenthood.

EUGENIC SCIENCE

The contributions of psychology center largely around building up eugenics as a science. Psychology, genetics, and demography, i.e., differential birth rates, death rates, and net reproductive rates, have made the chief contributions to engenic theory. Particularly basic have been the offerings from psychology. Such findings as those indicating that individual differences within any group are greater than average differences between groups have revolutionized eugenic orientation and have shifted its earlier emphasis from groups to individuals. The well known psychological truth that children resemble their parents more than they resemble other people has always been a basic principle in eugenics, as also the corollary that potentials for mental development are to a large extent governed by individual differences.

DEVELOPMENT

Psychologists have contributed significantly within recent decades to our knowledge of mental development. Such researches are to be found in any compilation of child psychology, differential psychology, and social psychology. Eugenics has been interested in the light psychological studies throw on the development of intelligence, personality, and physique, in order to assemble the findings which contribute to its own fund of facts.

INDIVIDUAL DIFFERENCES

Eugenics has concerned itself with those psychological researches which account for individual differences in development, e.g., residence in rural versus urban environments, southern versus northern regions, city, town, and culturally remote or isolated places, such as the Appalachian highlands, good cities, and poor cities (Sherman, 1933; Hirsch, 1928; Thorndike, 1939; and others). Results of studies of the effect on the child's personality of parent-child relations, interparental adjustments, family tensions, and the general atmosphere of the home, including contributions by various psychologists, such as those of Jones (1929) on homogamy of abilities and sibling rivalries, and Terman (1938) on factors in marital happiness, have been scrutinized and incorporated into eugenics texts (e.g., Osborn, 1940). Particularly significant for a properly functioning eugenics is a clear understanding of the part played by differential heredity and environment in accounting for individual differences in intelligence and personality. Within this area falls the work on twins, especially those identical pairs reared apart (Newman, et al., 1939), and on foster children transferred from poor to better homes (Schwesinger, 1933; Woodworth, 1941). Enlightenment from these and similar studies has reoriented the thinking and practice of eugenists from a former atmosphere of bias and emotionalism in regard to certain groups to one of critical evaluation and scientific caution as a sound basis for eugenic concepts, and has resulted in emphasis on the individual rather than the group.

MARRIAGE AND FAMILY MOTIVATION

Before any educational effort can be properly directed in eugenics it is necessary to know the factors operating to influence size of family among people of different caliber. Influences which affect marriage and the size of family among different population groups have been subject to combined study by psychologists, eugenists, and populationists. A current report (Bryan and Boring, 1946) discloses the differential influence of a career in at least one professional field on marriage for both men and women. Various field studies by the Milbank Memorial Fund have aimed to obtain information on social and psychological factors affecting fertility, such as the number of children born to a family compared with the number wanted; the influence of various social and psychological factors on the number wanted; and the effect on size of family of various measures to check the birth rate. Once these influences are explored, investigations can be introduced to study the effect of various techniques for changing attitudes about optimal family size.

SOCIAL EUGENICS

Social eugenics is concerned with enlightening the public with respect to eugenic implications. This effort is aimed at the adoption of a eugenic point of view rather than to teach the subject matter of eugenics.

COOPERATION WITH EXISTING AGENCIES

The American Eugenics Society, 1790 Broadway, New York City, chief spokesman for progressive eugenics, has held joint conferences with representatives of medicine, nursing, public health, social service, education, religion, business and industry, recreation, and family relations counselors. Problems in these various fields which may carry eugenic implications have been discussed, such as housing, cooperatives, nursery schools, and day nurseries, and social security. Policies are being jointly worked out for furthering the eugenic point of view in connection with these problems as they once were for problems of immigration, war, contraception, and sterilization.

The task of cooperating with existing agencies in furthering social eugenics involves the use of psychological services where they are available, such as parent-training classes, child-guidance clinics, and college personnel bureaus. Centers where psychological services are available usually are heavily charged with eugenically significant human material, such as college students at one end and subnormal children at the other end of the scale of intelligence. The psychologists in these agencies can take the initiative in enlightening others as to the kinds of psychological problems they can handle and as to the psychological techniques which are available for their solution in furthering the work of social eugenics and thereby establishing a consulting relation with the eugenics profession.

COOPERATION WITH SCHOOLS

The most effective way of orienting public opinion upon problems of eugenics is through the young people of a nation, especially the school children. The eugenic point of view can be incorporated in the instruction of many fields of educational activity, such as biology, psychology, family relations, child development and guidance, adolescent adjustment, social theory, and the various preprofessional requisites and sciences. This instruction is basic in attitude formation in the field of eugenics, beginning with the young child's attitude toward the family which he, himself, may have some day. Social psychologists have contributed significant techniques for the understanding of these attitudes which more and more may be expected to influence the instruction in the various fields aimed at the development of the eugenic viewpoint.

PUBLIC ATTITUDES

A social eugenic promotion program is concerned with psychological resistances to the eugenic point of view and how to overcome them. Assistance is gained in this matter from the development by psychologists of attitude scales and public opinion measurement, and from their work in advertising, propaganda, and salesmanship. Once a widespread educational program is launched and the eugenic philosophy accepted, social eugenics must put its principles into practice. Legislation may have to be influenced, centers of service and research set up, repeated surveys of opinion and attitudes conducted, and experimental programs checked upon. Appraising human differences, measuring changes in public attitudes and opinion, checking upon the success of a plan for development of a eugenic viewpoint, almost any practical steps in the eugenics program, is work which the psychologist is best qualified to do of all the scientists and practitioners who contribute to social eugenics.

CLINICAL EUGENICS

Many individuals have keen eugenic conscience in the matter of their own personal reproductivity. This is particularly true among those who have grounds for concern as to the normality of their prospective offspring. Couples who already have a feeble-minded child hesitate about conceiving other children. Families in whose background there has appeared some genetic weakness, physical or mental, fear for the normality of their own future progeny. Others want to know whether a recognized family weakness is actually hereditary or not. Young people contemplating marriage with a partner who manifests some doubtful traits are perplexed as to the wisdom of marrying that person. Worries over cousin marriages have plagued many a couple. Until recently, the only professionals to whom the perplexed person could go for guidance have been ministers and physicians, neither of whom are trained to deal with such problems.

EUGENICS RECORD OFFICE

The Eugenics Record Office was set up at Cold Spring Harbor, L. I. in 1910 by Mrs. E. H. Harriman to supply this needed guidance as well as to collect records to further the study of heredity. Individuals or couples who were interested in a genetic analysis of their family lines filled out elaborate schedules of

their genealogies and from these records the possibilities of traits reappearing in progeny were predicted. The service, when established, was concerned with biological heredity. But as facts about mental inheritance became available, and as the evidence on individual differences in intelligence was published in the 1920's and 1930's, psychological data took a more important place in clinical genetics and in the work of the Eugenics Record Office.

ALLIED EUGENIC SERVICES

Various clinical services have been established during the last decade offering kindred advice to that of the eugenics clinic. These are often services established by the psychological and medical professions or they may result from state laws stemming from the social eugenics viewpoint.

MARRIAGE AND FAMILY CONSULTATION

Marriage bureaus have been established in various European countries and the United States. The clientele of those in the United States usually consists of persons either married or just about to marry. Their purpose is primarily a better marriage adjustment, psychologically and biologically, hence they do not serve directly a eugenic purpose. They are a part of psychological and medical practice, are administered by a psychologist or a physician, and usually include a psychologist or a psychiatrist on their staff as chief consultant.

BIRTH CONTROL CLINIC

More than six hundred clinics give contraceptive advice in the United States. In addition, many of these clinics, which are headed by physicians, give advice on sterility, maternal health, and child care. Probably none have psychologists on their staffs and little if any psychological service is offered. They reach both urban and rural areas and are equipped to serve the economically handicapped. Since the client's motive for coming to a birth control clinic is to seek contraceptive advice, one suspects that genetic problems often may be present. These birth control clinics, however, are not staffed to offer a sound genetic analysis.

EUGENIC STERILIZATION

Legal sterilization is permissive or mandatory for certain selected cases in twenty-nine of the United States. For a large percentage of the feeble-minded or hereditary psychotic about to be discharged from state institutions (e.g., as in California, Virginia, and Minnesota), sterilization is recommended after a review of the individual case before a eugenics board composed of physicians. There is little recognition as yet of psychological influences in determining eugenic behavior in these individuals. Provision is made, however, in the laws of the state of California for the recommendation of a psychologist to have equal weight with the medical report.

PRENUPTIAL CONFERENCE

Some states require premarital examinations before marriage licenses are issued, a requirement which resulted from the movement to control venereal disease. The premarital examination usually includes a Wasserman test. In certain states, as in South Dakota, feeble-minded applicants are unable to obtain marriage licenses unless they are first sterilized. Since these applicants must take both mental and physical examinations, a prenuptial conference can encompass elements of a eugenics clinic. Both psychologists and physicians might well serve on such an examining board.

THE EUGENICS CLINIC

Genetic advice can be coupled with psychological, medical, and social consultation as was indicated in the early practice of the Eugenics Record Office. If the eugenics clinic were adequately staffed with professional specialists a comprehensive service of inestimable help could be offered, the like of which does not yet exist and the usefulness of which would be far beyond the cost. The services suggested in the survey of kindred clinics and reviewing boards, covering as they do the problems of marriage, child-production, and family size, contribute to eugenic practice. But psychological and medical examination, and recommendations from them concerning marriage and fertility, alone are insufficient. A genetic analysis is the core of clinical eugenics practice and a guidance or continuing service is necessary to meet problems of progeny as they arise after marriage.

CLINICAL PROBLEMS

The clients who come to a eugenics clinic range from adolescents, who are getting their first perspective on their own biological possibilities, to rather longtime married couples. The clinical problems range from a desire for a premarital check-up and advice to a detailed consideration of postmarital

problems calling for counseling on further reproductivity, parent-child relationships, child care, and adult adjustment.

CLINIC ORGANIZATION

Ideally the eugenics clinic calls for a staff of specialists trained in genetics, psychology, sociology, and medicine, and who serve as the consultants in the eugenics clinic. The geneticist knows the genetic possibilities of a trait appearing in a specified family line. The physician must pass upon the seriousness of a defect whose genetic origin is still obscured. The psychologist envisages the human material from the standpoint of limitation, potentiality, trainability, marital adjustability, and parental qualification. A eugenics field agent or social worker, specially trained to uncover facts of family history pertinent to a eugenic analysis, is a necessary member of the staff. Such workers were used by Davenport in the early days of the work in the Genetics Record Office and by Terman (1925) and Town (1939) in their genealogical studies of gifted and feebleminded children.

PSYCHOLOGICAL PRACTICE

The psychologist of the eugenics clinic relies upon his usual clinical techniques of interview, and tests and scales for assessing intelligence, personality, and attitude. Where needs are felt for scales which are not yet provided, the psychologist is qualified to make such scales; e.g., tests for aptitude for marriage or child-rearing would be a valuable adjunct in a eugenics clinic. Records of family relatives, developmental story of the clients, and the usual history, form parts of the evidence collected in the psychological examination of the eugenics clinic.

EUGENIC CONSULTATION

Clients who would be advised about their marital possibilities must be able to see themselves via a genetic evaluation as well as through mental and physical checks. The eugenic counselor's discussion will necessarily vary with the mental ability of the clients. Among the points which should be covered in conference with the client are: (1) the hereditary hazard to progeny, with probable errors, for the particular couple; (2) the chances for parental adjustability to the prospective children; and (3) the marital adjustability of spouses, particularly in regard to psychological, social, medical, and economic factors. Agreement can be gained on this basis as to the desired family size.

Genetic weakness, coupled with manifest mental limitation, suggests complete curtailment of progeny through sterilization measures. Genetic weakness, coupled with mental adequacy, suggests caution, perhaps family limitation. Genetic soundness, with mental handicap, suggests limitation of progeny, not on an hereditary argument but on an environmental one, for mentally limited parents are not good teachers for their children. Genetic strength, coupled with mental and physical soundness, suggests a large family, preferably four or more children for each such couple. Doubtful cases, as when genetic strength is coupled with genetic weakness, which might happen when one member carries the suggestion of hereditary taint and the other does not or when both good and bad traits appear within the one family line, should be discussed for all possible implications from the genetic, psychological, and medical data. Solutions will necessarily undergo revision with accrued experience, which indicates the need for an adequate follow-up service in the eugenics clinic.

READING REFERENCES

Flanagan, J. C., "A Study of the Factors Determining Family Size in a Selected Professional Group." *Genetic Psychology Monographs,* 1942, **25,** 3–99.

Lorimer, F., and F. Osborn, *Dynamics of Population.* New York: The Macmillan Company, 1934.

Osborn, F., *Preface to Eugenics.* New York: Harper & Brothers, 1940.

Schwesinger, G. C., "Studies in the Genesis of Psychological Characteristics," in Frederick Osborn (ed.), *Heredity and Environment.* New York: The Macmillan Company, 1933.

———, "The Role of Psychology in Eugenics." *Journal of Heredity,* 1941, **32,** 319–324.

Woodworth, R. S., *Heredity and Environment: A Critical Survey of Recently Published Material on Twins and Foster Children.* New York: Social Science Research Council, Bulletin No. 47, 1941.

99. THE PHYSICAL EDUCATOR

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Physical education is a branch of general education, which deals with (1) the facts and principles of physical fitness and (2) special training methods for the development of different kinds of athletic skills. It overlaps with anatomy, physiology, medicine, sociology, psychology, and general education. Teachers of physical education must be familiar with such basic facts in premedical training as the structure and functions of the bones, muscles, glands, and other organs of the body. They must know the sociological factors which govern conduct on playgrounds. They must be adept in the organization of community programs for the promotion of health. In the last analysis, they bear witness to a philosophy of life—a life of sturdy good health at all age levels.

PSYCHOLOGY AND PHYSICAL EDUCATION

Youth do not check their brains in their lockers when they enter a gymnasium. They may like or dislike physical exercise. They may be sturdy or poorly developed. In either case, they remain human beings. They are seeing, hearing, judging, learning, thinking, desiring, and purposing individuals. Not even the most formal and witless sort of exercise can be shorn of its psychological factors. The physical educator and the coach, therefore, are more than trainers; they are teachers of youth. Even while they are mastering the elements of physiology, they must learn the sorts of psychological knowledge commonly used by the classroom teacher.

THE PSYCHOLOGIST IN PHYSICAL EDUCATION

There is a long record of exchange of facts and principles between the psychologist and the physical educator. It has been argued from the most ancient times, that education should produce sound minds in sound bodies. Some of the earliest studies dealt with the play instinct and the desire to compete. The camera has long been employed to analyze the muscular movements of athletes. Almost from its birth, experimental psychology has been concerned with the speed of sensory and motor reaction and with the development of manual skills.

In more recent years, football, baseball, and other coaches have asked psychologists to study such problems as (1) the reaction times of linesmen in charging, (2) the dynamic aspects of visual fields composed of many moving objects, (3) the best methods of "keying a team" to win, (4) the most suitable tests for selecting able and colorful men, and (5) the ways in which leaders of group games can be developed. The psychologist, in his turn, has asked the coach and the educator to provide realistic conditions for careful experiments on all sorts of performances. He has studied, not only the problems listed above, but a wide variety of other problems of learning, of adjustments to personality differences, of the effects of drugs on skill and endurance, of the sleeping habits of athletes as compared with nonathletes, of the various aspects of emotional behavior, and of the best methods of conditioning men both for competition and for military service.

PSYCHOLOGICAL POINT OF VIEW

For the physical educator, the most practical point of view is expressed by one word: performance. An infant's initial attempt to walk is a performance. Running, throwing, catching, tackling, dodging, and standing are performances; somersaults, balancing, wrestling, boxing, hurdling, sizing up a field of play, and choosing a strategic mode of offense are performances. The physical educator seeks to develop and control the varieties of performances.

The small child and the awkward adult are poor performers. The former has not developed strength, speed of movement, coordination and the clever skills he will possess in later life; the latter has not been properly trained during those years when his muscles and nerves were most sensitive to change. It is one of the tasks of the psychologist to study the laws and principles of growth in these respects.

The physical educator begins with these facts and principles. His profession requires him to convert data about human nature into teaching methods which will guide motor development toward more economical and efficient levels of performance.

The science of psychology is based on the analysis of performance. Youth behave as they do in the gymnasium and on the athletic field because they can sense the situations around them, react promptly to these situations, desire some of them in preference to others, think about them, remember their previous experiences with them and use them as guides toward the goals they want to achieve. Each of these aspects of performance is the focal point for experimental studies. The results comprise the science of psychology and at the same time form the preface to physical education. With the knowledge the psychologist can give, the physical educator directs performances toward health-promoting goals, competence in a sport, and wholesome and efficient habits of adjustment to life situations.

FORMAL PHYSICAL EDUCATION

HEALTH EDUCATION

The broad field of physical education can be divided into two parts: health education and athletics or sports. Health education is not the same as medicine. The physical educator does not heal the sick or bind wounds save as first aid may be required by an accident. He builds bodies and develops habits and skills designed to prevent sickness and thwart accidents. Programs of health education include formal exercise, training in good habits of eating, sleeping, and working, and the supervision of school or city playgrounds. Their goal is well developed bodies, habits of regular exercise and sound attitudes toward cooperative play.

SPORTS

The aims of an athletic program are similar but they are reached in a different manner. The coach, who is also a physical educator, instructs youth in games of skill. In addition to fitness, these games are intended to provide an outlet for competitive zeal. They are played in accordance with standards for physical and mental achievement, and they provide satisfying modes of activity for later life. Both physical education and sports follow a philosophy based on the science of human nature, i.e., the mental and physical qualities of men suggest the limits of what can be expected of men. People who are well developed, who exercise regularly, and who have acquired leisure-time skills are able to resist disease, live safely, and serve themselves, their families, and their nation most fruitfully. Their proficiency in performance becomes an asset to personal and social adjustment.

HEALTH EDUCATION

IN THE SCHOOL

If the only purpose of a school were to train the mind, pupils might be expected to behave as though they had no bodies at all. The human organism, however, was not designed simply to exist without stimulus to action. The child is a psychophysical organism. Its schooling is improved if there are morning and afternoon periods of exercise. Moreover, its social attitudes are improved by cooperative play. When left to themselves young people often sit or stand with postures which obstruct normal development. Many may have a sufficient amount of food but not enough of the right kinds of food. Rooms are often poorly lighted and badly ventilated. Sleeping habits are faulty and the hygiene of the body carelessly attended.

These are some of the circumstances which have a marked bearing on mental and physical efficiency. The physical educator attempts to remedy them, for he has learned from psychology that they diminish the efficiency and enjoyment of daily labor. Moreover, activities on the playground cannot be left to chance. Supervised games stimulate the growth of the body, develop adjustive attitudes, and promote social bearing. Games, in their turn, create a whole family of problems. In addition to the administration of playgrounds, and the organization of group activities, a program of health education must be geared to the reasons why children want to play, how they may be taught to play, and how they may learn about and use health habits in the regulation of their lives. The psychologist studies the general laws of each of these matters. The physical educator applies the laws in order to promote growth, health, and satisfying forms of leisure activity.

Each of these problems characterizes the common sports. In fact, sports activities force the physical educator and the psychologist to combine their efforts in a common program. An athletic contest, for example, draws on all the mental and physical powers of the participants. Both the coach and the student of human nature must inquire about the origin of

the desire to compete. That is, they must undertake the complex problems of distinguishing original from acquired behavior. They must study the long process of mastering new skills, examine the relation of a clever play to the structure of the field of play as a whole, learn about the emotional bases of heroic effort, define the nature of motor coordination, and locate the sources of determination, endurance, and high morale. None of these problems, of course, differs from related problems in medicine, industry, or advertising. The athletic field, however, provides a peculiar setting for them, for the athlete is motivated by extremely powerful incentives. The coach goes to the psychologist for facts about these matters. Of all people, he is a practical psychologist whose success depends on his knowledge of desires, purposes, the laws of learning, methods of teaching, and kindred problems.

SOCIAL ASPECTS

Both aspects of physical education, namely, health habits and athletic programs, occupy a central place in the larger arena of social activity. The monotony and nervous tension of labor in an industrial culture must be relieved by directed leisure. Every nation faces periods when it must be prepared to defend itself by strength of arms. Other things being equal, a sturdy, virile, healthy society holds an immense advantage over its enemies. A weak, unhealthy, inactive society may endure under the protection of the strong, but it may not contain the mental and physical qualities necessary for its own survival.

These facts become exceptionally impressive during times of world turmoil. It is slowly becoming clearer that success comes to those nations which have supported strong programs for physical fitness. Both on the side of health habits and on the side of athletics, these programs are based upon and feed back into human-nature facts. The experimental psychologist studies patterns of adjustment which will be valuable in times of stress. The physical educator undertakes to improve the health of the people, their skill and their stamina, in accordance with the facts.

These problems are not limited to youth alone. They increase in significance as men grow older. Since men are running a losing race with death, the physical educator is like a conserver of vital resources. These resources consist of human strength, health, alertness, and cooperative zeal. When habits of living and skills for use in periods of leisure are neglected, damage to health and vitality immediately follows. The social problem, therefore, is to provide training in health habits and to develop skills which can be enjoyed by men and women in all walks of life. Of particular importance are modes of exercise and games which will yield enjoyment and profit to the aging who will have difficulty in maintaining themselves in good condition.

The psychologist has made many studies of mental and physical decline with old age. The sociologist applies the results to plans which will be beneficial to society as a whole. The physical educator cooperates with these plans so that the period of profitable existence for a man will be increased as much as old age will allow.

PHYSICAL FITNESS TESTS

Like the field of education proper, programs of physical education are leaning more and more heavily on tests of physical fitness and of motor ability. These tests form the basis of programs of exercise and instruction. Many of them, of course, are plain measures of bodily frame. Studies have been made of the major bones of the body, of the size of the various muscles, of ratios between members of the body, of postures, of pulse rate before and after exercise, of respiration, and of strength, speed, and coordination.

Tests which are not simple measures of bodily organs may be divided into two groups: (1) tests of performance consisting of standardized units of commonly played games, selected for their value in predicting ability and success in the game as a whole and (2) tests of more basic skills and aptitudes such as reaction time, rate of learning, coordination, rhythm, and accuracy. These tests are basic because they undertake to measure ability quite apart from the way in which ability may be employed in more complex performances.

Both the psychologist and the physical educator have devised many tests in these areas. The Brace test of motor ability is a typical instance. Because of his long experience in test construction, the psychologist has often taken the lead in this field. The common goal is a small battery of tests which will be predictive either of gross strength or of special fitness for different kinds of sports. If, for example, the fitness of a man can be measured with respect to a standard, the physical educator can immediately formulate a program of exercise designed to correct measured weaknesses, both general and special.

It has been fairly easy to develop performance tests for each of the special sports. A coach may wish

to measure the basic abilities of successful baseball players. These abilities are reflected in tests of running, throwing, sliding, fielding, and hitting. The abilities that lead to clever baseball, however, may be the same as those which lead to success in other games. Constant search is being made, therefore, for a selected list of tests which will be predictive of general physical fitness. Many sports depend on strength. Strength has been proposed as one of the criteria of general physical fitness just as intelligence is commonly used as a criterion of general mental fitness.

The psychologist has worked toward the same general goal. His experience with the development of tests of intelligence has been made available to the physical educator. The ability to do mental forms of work, book learning, is not identical, however, with the ability to do motor forms of work. The intelligence quotient defines one aspect of mental ability. It is an important question as to whether there may not be a parallel concept of motor intelligence. If there is, it ought to be true that, in the analysis of separate athletic skills, the abilities common to all of them might be found. Many attempts have been made by psychologists to disclose these common factors. The Stanford Motor Skills unit which is an example, is based on the highest degree of precision. So far, however, a motor or athletic equivalent of general intelligence has not been found. Each of the various skills acquired by a person seems to be specific to the task to be done, but methods of factor analysis developed by the psychologist offer promise of further information.

REMEDIAL PROGRAMS

Many youth are handicapped in growth and achievement by physical disabilities. An infected heart, tubercular lungs, muscular atrophy, small stature, and lost limbs deprive youth of the opportunities for a normally active life. This sort of deprivation has created a new bond of union between the physical educator and the psychologist. Exercises and games for a normal youth are easy to provide but the inability to participate in playground activities often leads to vexing problems of adjustment which demand new degrees of cooperation between the psychologist and the physical educator.

The main facts about adjustment are as follows. Goal-seeking is a distinctive feature of living creatures. Men have needs which must be satisfied. Satisfaction may be gained directly or with the aid of habits and attitudes which are generated out of the basic tissue needs by learning. Unhappily, however, there are discrepancies between needs, wants or desires, and the available satisfiers. No person can do or have everything he wants. The first result is tension and conflict, and the second result is the development of a mechanism of adjustment. The science of human nature provides a picture of men who, in their wanting, striving, purposing, intending, and willing, are under constant pressure to reconcile their goals with obstacles and frustrations, and with their own abilities.

Every child desires to play as other children play and to compete for prizes or for victory. This desire, however, may be frustrated by physical handicaps. A young man may wish to play a game with his fellows but be unable to do so because of a bad heart, insufficient strength, poorly developed muscles, paralyzed limbs, poor eyesight, or low intelligence. Such a youth may feel frustrated and defeated in what he wants. He will acquire a deep sense of inferiority with respect to other people. Even a normal youth may not always achieve the success that he desires. He may be unfitted for an occupation because some of his muscles are undeveloped in respect to others. The result is awkwardness, that is, proneness to accidents. When these conditions create conflict, one does not cease wanting to achieve success. Unless help is brought, the final adjustment may be harmful both to the person himself and to the group in which he dwells. The physical educator is required to develop remedial and other kinds of health habits and athletic practices for the handicapped. Where muscles are to be strengthened, digestion improved, and skills developed, he plans a proper program. For some kinds of handicaps he must create new kinds of exercises.

Programs of exercise for the handicapped are special instances of the relation between health, education, and psychology. The psychologist, however, has extended his work to the larger problem of social welfare. From the psychological point of view, all men are searching for fruitful types of adjustment between what they want and what they are able to get. They are striving to work out a satisfactory life plan. They steadily push toward the goals set for them by early training, that is, by their interests, habits, and abilities. A central factor in successful adjustment is a wide margin of good health. Physical education, accordingly, can easily fail in its remedial work if it permits a weakness of the body to serve as an obstacle in the way of health or achievement.

Programs of health education, therefore, feed into

and in turn are fed by the facts which psychologists have been able to assemble concerning adjustment to life situations. In broad terms, psychology can be defined as the science of life patterns. Life patterns are composed of habits of adjustment. Health education, whether for fitness or for remedial work, treats most directly with the resources employed in habits of adjustment. Its purpose is to promote useful patterns of living by correcting defects and stimulating normal growth.

SPORTS

There is no special psychology of the athlete. Games and athletic contests, however, are as full of psychological events as are industry, advertising, and medicine. The dressing room of the football team is almost a laboratory for the study of emotional behavior. The training fields for other sports require a concentrated application of the laws and principles of learning. The "bull sessions" between a coach and his players are a concrete illustration of teaching men how to think. Such words and phrases as strategy, the breaks of the game, hunches, the psychological moment, headiness, the will to win, and "morale" attract the psychologist to sport and force the coach to study psychology.

EMOTION

The psychologist has made many studies of anger, fear, worry, and other kinds of emotional behavior. During anger, for example, the adrenal glands secrete a chemical which increases pulse and respiration, releases glycogen for use in the muscles, and otherwise prepares the body for violent exercise. The cold sweat of an athlete just before a contest is a symptom of his preparedness for action. It disappears as soon as the contest begins. Fear is known to have the same effects on the athlete.

LEARNING

More is known about the laws and conditions of learning than about any other feature of human performance. The methods of physical education and the art of coaching a player or a team are based on them. They are, without doubt, the greatest contribution made by the psychologist to coaching methods.

The psychologist has long since studied the conditions for learning almost every variety of skill used by the athlete. Ball-tossing, juggling, running, jumping, basket-shooting, swimming, and throwing have been examined. There are also studies on emotional learning. The way in which a fear can be conditioned to a pitched ball, an aggressive opponent, deep water, falling to the ground, or playing before a crowd is a central feature of many experiments on learning. Even more important for the coach are the methods to be used in removing fears by the process of relearning. The "yellow streak" often yields to the methods devised by the psychologist in his studies of the education of the emotions.

LAW OF EXERCISE

The most general principle is that learning occurs by repeated doing. A child does not acquire health habits merely by hearing the matter discussed. Athletes do not acquire skill in golf, tennis, hitting, or fielding solely by watching other athletes perform. There is only one road to excellence and skill. It lies along the route of practice with yet more practice under the conditions described by a long train of psychological experiments.

INCENTIVES

This plain law of exercise is not enough. Learning of almost every variety is hastened when daily periods of practice lead to satisfying consequences. The coach and the physical educator, therefore, must turn to the psychologist for facts about the effects of rewards, successes, praise, knowledge of gains made, levels of aspiration, and all the other circumstances which promote or thwart mastery of athletic activities. The relation between these factors and punishment is another problem on which the psychologist has done much work. Defeat is a form of punishment. Criticism often acts as punishment. The coach, in consequence, must be more than normally aware of the attitudes of his players when they suffer defeat or when faults are corrected.

DISTRIBUTED PRACTICE

Practice periods should be distributed or spaced rather than concentrated if they are to produce the best results in the shortest time. Learning is not a simple process of adding one reflex to another. The special skills of the athlete are derived by a process of individuation from earlier and more generalized movements. The details of this sort of growth are a product of extended psychological studies.

WHOLE LEARNING

It is often advisable to teach skills as organized wholes. Within the entire skill taken as a unit, special emphasis can be placed upon those members

which develop more slowly. Here again, the experimental psychologist has prepared the way for the coach.

REVIEW

After a skill is well learned, frequent repetitions are better than concentrated overlearning. But this factor often depends on the character of the motives and rewards for activity. Most athletes compete for a place on the team with intense motivation. The coach, therefore, is in a favored position over the teacher in other fields, but motives must be controlled and the sources of control come from psychological studies.

THINKING

In spite of popular opinion, an athlete is not a dumb creature of habit. He need not be a mere "motor moron." To be sure, certain games can be played at a low level of manual skill and sheer brute strength. Other games demand a high level of judgment, insight, discrimination, and problem-solving. The clever man can outguess his opponent, discern what he is about to do, or sense his strategy. From this information, he can plan his own strategy and achieve, even in the midst of the most intense physical work, a keen insight or hunch as to what he ought to do or ought not to do.

On the basis of psychological studies of thinking, the coach can train his men how to note the details of a situation and especially its new, strange, or different aspects. If a player has been well coached, the common details of performance will have been converted into habits. He is then ready to ask himself over and over again, What did that signal mean? What will be the next move of the opponent? What should I do next? This sort of self-questioning, supported by trained powers of observation, leads directly to athletic insight. Because of psychological research on the nature of thinking, athletes can be taught how to increase the speed and cleverness of their judgments while a game is in progress.

PERSONALITY TRAITS

The athletic field is a rich source of information about personality and character traits. Players can cooperate with, or they can distrust, each other. Each man develops his own methods of adjusting to other men. These matters are important; it has long been said that one of the chief aims of physical education is to develop character.

Neither the coach nor the psychologist are wrong in this judgment. A game is the scene of interpersonal adjustments involving rivalry, leadership, aggression, jealousy, and sportsmanship. In terms of the psychology of adjustment, personality can be defined as each man's particular habits of settling conflicts between his wants and the available satisfiers. Each person on a team, for example, desires prestige. He wishes to be recognized as an individual. He acts so as to escape needless defeats, shames, insults, and frustrations. Each man, however, acquires his own methods for gaining prestige. His compensations, regressions, defense reactions, and rationalizations are practiced on the athletic field under conditions which transform them into personality traits.

The studies in this field are by no means as exact as they are in other fields. The dynamic conditions under which personalities are formed, however, is now a major feature of psychological research. The physical director and the coach have prompted some of the studies. They are interested in them because man-to-man relations are always difficult to handle fairly. In proportion as coaches "make men," sustain them in defeat, and inspire them to great achievements, they utilize human nature facts or pose new problems for psychological research.

PHYSICAL AND MENTAL CONDITIONS

Both industry and athletics have stimulated the psychologist to studies of efficiency. The psychologist, in his turn, has often reminded the coach of the dangers of excessive fatigue, monotony, and overtraining. The pink of physical condition is both a physical and a mental state. It is a readiness and a willingness to spring into action at the height of skill and stamina.

Like working hours in a factory, games and contests have excited a whole family of psychological problems. Studies have been made on the nature of sleep, the effects of nicotine, alcohol, and other drugs on efficiency, the conditions which favor fatigue and feelings of monotony, and the ways in which waking forms of relaxation can be employed during a contest. The experienced coach has long been sensitive to the symptoms of poor conditions and the psychologist has followed many clues supplied by the coach. Meanwhile, he has made his own experiments available to the coach in increasing numbers. The result is new levels of competence in developing the fitness of men, both for peaceful and for military purposes.

MORALE

Morale, like health, is a background condition of social living which in large measure is dependent on abundant health and strength. It is a state of mind, which, like the weather, does not become obvious until marked changes bring it to notice. Under normal conditions, morale springs from the faith of a person in what he is doing, from his willingness to work with other people of like faith, and from the sheer joy of active participation in life. The physical educator has long been recognized as a builder of morale, especially as regards the vital factors of health and fitness.

This fact is emphasized during times of stress, anxiety, and insecurity. These words name the chief enemies of morale. A man is beaten when he no longer believes in himself, and it is difficult to achieve self-belief if the self is harassed by feelings of incompetence and insecurity. Morale, then, names a major problem of mutual interest for the psychologist and the physical educator. Wars, famines, disasters, and depressions make the problem especially acute. The psychological problem is to describe the elements of morale and determine the conditions which create or destroy it. The educational problem is to establish the conditions which will raise the level of morale.

By combining their forces, the psychologist and the physical educator—and the doctor, the sociologist, the pastor, and others—are solving these problems. The Army morale officer is a student of human nature and a teacher of mental and physical fitness. The athletic field is a kind of clinic for the study and correction of attitudes, frames of mind, and disposition. It is also a laboratory in which the physical educator can test certain observations made by the psychologist. Working together, he and the psychologist are steadily moving toward the solution of the major problems of fitness for social living.

READING REFERENCES

Cureton, T. K., et al., "Physical Fitness." *Research Quarterly,* 1941, **12,** 301–493.

Davis, R. A., *Psychology of Learning.* New York: McGraw-Hill Book Company, Inc., 1935.

Esslinger, A. A., "Physical Education," in W. S. Monroe (ed.), *Encyclopedia of Educational Research.* New York: The Macmillan Company, 1941, pp. 801–814.

Griffith, C. R., *Psychology and Athletics.* New York: Charles Scribner's Sons, 1928.

Seashore, R. H., "An Experimental and Theoretical Analysis of Fine Motor Skills." *American Journal of Psychology,* 1940, **53,** 86–98.

Shaffer, L. F., *The Psychology of Adjustment.* Boston: Houghton Mifflin Company, 1936.

Stafford, G. T., *Sports for the Handicapped.* New York: Prentice-Hall, Inc., 1939.

Staley, S. C., "Sports and Military Preparedness." *Illinois School Board Journal,* 1941, **7,** 51–56; 65–66.

Williams, J. F.; J. I. Dambach; and N. Schwendener, *Methods in Physical Education.* Philadelphia: W. B. Saunders Company, 1932.

100. REHABILITATION OF THE HANDICAPPED

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There is no special psychology of the physically handicapped, except insofar as the handicapped person has to face problems not common to all individuals. A vocational rehabilitation program for the handicapped is similar to vocational adjustment programs for persons without serious physical and mental impairment and includes the same psychological principles, techniques, and procedures. As a field of work, however, vocational rehabilitation has certain characteristics which differentiate it from other vocational adjustment programs, particularly those in educational and social institutions.

Measured Characteristics of Disabled and Nondisabled Adults

TEST	Disabled N*	Q_1	Md	Q_3	Q	Non Disabled N	Q_1	Md	Q_3	Q
Pressey Classification										
Males	345	39	50	64	13	500	28	41	61	17
Females	228	36	50	64	14	250	32	44	65	17
Pressey Verification										
Males	376	39	53	66	14	500	32	45	62	15
Females	194	41	50	67	13	250	41	55	71	15
Minnesota Clerical-Numbers										
Males	385	71	88	103	16	500	63	83	102	20
Females	232	90	105	120	15	250	93	109	133	20
Minnesota Clerical-Names										
Males	402	63	81	100	19	500	55	78	100	23
Females	233	83	106	125	21	250	87	111	137	25
O'Connor Finger Dexterity										
Males	385	296	265	239	29	500	316	280	251	33
Females	217	264	237	220	22	250	274	244	221	27
O'Connor Tweezer Dexterity										
Males	399	409	356	322	49	500	403	360	325	39
Females	211	386	343	313	27	250	378	342	312	33
Minnesota Spatial Relations										
Males	355	1,434	1,222	1,166	134	500	1,481	1,262	1,100	171
Females	191	1,415	1,156	1,016	200	250	1,488	1,279	1,122	183

* Key to symbols used: N = Number, Q_1 = first quartile, Md = Median, Q_3 = Third quartile, Q = semiquartile range.

MENTAL ADJUSTMENT

Many are of the opinion that the physically handicapped are also handicapped mentally, but this point of view is not supported by psychological studies of the disabled (Paterson, 1930). These studies are consistent in reporting a wide range of abilities and a marked mental inferiority for the disabled suffering involvement of the central nervous system (Pintner, Eisenson, and Stanton, 1941; Odoroff, 1945). When those with central nervous system involvement are eliminated and the socio-economic status is controlled, the physically handicapped are found to be comparable in mentality to the general population.

The comparability of measured characteristics for the physically handicapped and nonhandicapped is demonstrated in the table. Data for the latter are the national norms established at the Minnesota Stabilization Research Institute for gainfully employed adults, and data for the handicapped are based on a random sampling of applicants for rehabilitation service in Minnesota. These data indicate that the essential considerations in rehabilitation of the physically handicapped differ from those of the general population only in the nature of the handicap.

SOCIAL ADJUSTMENT

It is the opinion of many that there is great social maladjustment among the physically handicapped and that frequently such behavior may be attributed to the crippling condition. These opinions are not supported by psychological evidence. In a study of scoliosis and osteomyelitis, Kammerer (1940) concludes that crippling has no unique influence on child behavior and compensatory behavior is not occasioned by a crippling condition. The experience of rehabilitation workers support the latter view and further indicates that maladjustment depends primarily upon the frequency and severity of the problems with which the disabled person is confronted, rather than upon the disability itself.

REHABILITATION PROGRAM

A publicly supported program for the vocational adjustment of the physically handicapped had its inception in this country when the Vocational Rehabilitation Act was approved on June 2, 1920, by Congress and funds were appropriated for use by the States. The original Act was reviewed periodically from 1920 until 1935, when, with the passage of the Social Security Act, vocational rehabilitation was placed on a permanent basis and federal financial participation increased. By 1939, all states, the District of Columbia, and the Territories of Hawaii and Puerto Rico had established vocational rehabilitation programs.

Up to this time the services available for rehabilitation of physically disabled persons were confined to

counseling, vocational training, provision of prosthetic appliances and placement. As a result only a selected number of the handicapped could be rehabilitated into employment. In recognition of the nation's urgent need for manpower and the limited variety of services available to disabled persons under the original Act, Congress enacted in July 1943, the Vocational Rehabilitation Amendments (Public Law 113).

ADMINISTRATION

Under authority granted by the Amendments, the Administrator established in October 1943, the Office of Vocational Rehabilitation as a constituent unit of the Federal Security Agency. The Office of Vocational Rehabilitation is responsible for leadership, establishment of standards in the various areas of service, technical assistance to the states, and for certification of federal funds. Responsibility for the administration of rehabilitation services to handicapped persons is assigned to the State Boards of Vocational Education, each maintaining a Division of Vocational Rehabilitation with a full-time director in charge. Rehabilitation services for the blind are administered by the state agency for the blind when such agency is legally authorized to provide such services to the visually handicapped.

FUNCTION

Broadly defined, vocational rehabilitation accepts the handicapped person as he is and sees him through to the best vocational adjustment of which he is capable in order that he might become self-supporting and socially useful. The activities of the program are designed to (1) locate persons needing such assistance, (2) assist them in selecting a suitable vocation, (3) prepare them for the selected vocation, (4) help them secure employment after preparation, and (5) help them to make necessary adjustment after they are at work. Services to attain this end include physical, psychiatric, and psychological examinations, counseling, medical and psychiatric treatment, surgery, hospitalization, occupational, physical, and work therapy, prosthetic devices, prevocational and vocational training, maintenance and transportation during rehabilitation, occupational tools, licences and equipment, placement and postplacement adjustment. Services with the exception of physical, psychiatric, and psychological examinations, counseling, training, and placement are conditioned upon the establishment of economic need of the applicant.

SCOPE

The benefits of the program are now available to the mentally as well as the physically handicapped. The mentally handicapped include the mentally ill and mentally retarded. Eligibility is determined on the basis of the presence of a physical or mental impairment that constitutes a substantial handicap to employment. Although age limitations are not prescribed, it is recommended that the states observe their state laws with respect to the minimum employment age, which is usually sixteen, and that no maximum of limit be established.

Accurate data on the number of physically and mentally handicapped persons are not available. The National Health Survey of 1935 contains the most comprehensive data thus far available. On the basis of these data it is estimated that there are 7.2 per thousand of population as the group which would be referred to state rehabilitation agencies for determination as to their need for vocational rehabilitation.

PERSONNEL

Since responsibility for the administration of rehabilitation services to disabled persons is assigned to State Boards of Vocational Education, personnel are employed by the states with the result that qualifications for personnel vary from state to state. Minimum standards for vocational rehabilitation counselors in the majority of states require graduation from an accredited college or university in addition to two years of paid full-time experience in education, personnel management, workmen's compensation, public employment service, social work, or business. Usually, graduate work in psychology, guidance, personnel management, tests and measurement, and similar courses may be substituted for experience year for year. The length of experience is increased for supervisory and administrative positions.

Present practice places emphasis on college education and employment experience rather than on professional training. Since the future welfare of the handicapped person is in large part contingent upon the quality of vocational guidance given him, experience in itself cannot be considered an adequate substitute for the technical training requisite to counseling. One state (Minnesota) places major emphasis on the technical training of its personnel (Finch, 1937).

QUALIFICATIONS IN MINNESOTA. The qualifications for rehabilitation counselor in Minnesota are as follows:

1. *Education.* Graduation from an accredited college or university with the equivalent of (*a*) at least

a full year's graduate or undergraduate training in vocational guidance, personnel psychology, and other courses dealing with individual diagnosis in relation to vocational adjustment, or (*b*) a full year's training in education or social welfare supplemented by a half-year of training in the above fields.

2. *Experience.* Two years of paid full-time employment in vocational rehabilitation, vocational guidance, employment, or personnel work, and related activities which require individual diagnosis in relation to vocational adjustment. Graduate training in the fields named above may be substituted for experience year for year.

Certain personal qualifications are considered in the selection of rehabilitation personnel in Minnesota. The applicant should possess interests characteristic of adult professional workers in the various personnel occupations; he must be able to deal pleasantly and effectively with, and inspire confidence of, other individuals and groups of individuals; and he should be such as to make a favorable impression on other persons.

In addition, certain technical qualifications are stated as desirable in which the advanced training indicated is largely in the applied specialties of psychology.

1. *Education.* Graduate or undergraduate training in as many as possible of the following specific fields: tests and measurements: group and individual, educational and vocational; industrial or personnel psychology; vocational guidance; vocational psychology; abnormal psychology; social pathology; social case work; personnel administration and management; occupational studies and job analysis; and labor problems.

2. *Special Knowledge.* Knowledge of various types of jobs; job specifications, and occupational information based on job studies; knowledge of academic and vocational training agencies; knowledge of public and community agencies, such as employment service, health agencies, social agencies, and psychiatric clinics; knowledge of workmen's compensation administration and labor legislation; and knowledge of special problems of the handicapped.

3. *Experience.* Employment in as many as possible of the following fields: vocational and educational guidance, vocational education, personnel work, psychometrics, clinical psychology, and industry.

PRESENT STAFF

In 1940 there were 314 full-time and 37 part-time professional personnel employed in the United States, Hawaii, and Puerto Rico. Since the enactment of the Amendments (1943), the number of professional personnel has increased to 1926 professional workers as of December 31, 1946 (Dabelstein, 1946).

FUTURE DEVELOPMENTS

There is a rapidly developing profession in the vocational rehabilitation of the physically and mentally handicapped. Until colleges and universities establish a curriculum for this profession, the states will be unable to secure technically trained personnel and will have to continue to recruit personnel from related fields and provide the necessary training through their own staff development programs (DiMichael, Dabelstein, 1946).

REHABILITATION SERVICE

A rehabilitation service can be broken down into a series of steps which indicate the nature of the program and the responsibilities of the counselor.

SELECTION

The basic data that is necessary to determine eligibility for services require a general medical examination of all applicants together with specialty examinations when indicated. For the mentally ill this would include a general medical examination as well as a special examination by a qualified psychiatrist. A general medical examination would be supplemented by a complete psychological diagnosis for the mentally retarded applicant.

CASE STUDY

Medical data, together with information as to aptitudes, interests, personality, home, and social factors which facilitate or inhibit vocational adjustment, must be considered to determine whether rehabilitation is feasible as well as to provide a basis for counseling and planning a program of services. Sources of analytical data may include psychological tests, interviews with the client, records of former schooling; reports from friends, parents, and teachers who may have observed significant emotions, interests, attitudes and aptitudes; reports from social and welfare agencies and employment records. The appraisal of these data is a combination of the measurement techniques of the psychologist and the case method of the social worker, with the added feature of continuity of case work through preparation for and placement in employment.

ANALYSIS. The analytical techniques are identical with those employed in any clinical guidance pro-

gram (Williamson and Darley, 1937). The more thorough and objective the analysis, the greater is the emphasis upon the qualifications for jobs rather than upon the disabilities of the client. The rehabilitation worker must know the uses and limitations of psychological and clinical data. Furthermore, the conditions under which the counselor works and the limited number of objective instruments available for use with handicapped adults calls for a psychological approach to the evaluation of all types and sources of evidence. It requires seeking and recognizing dependable evidence upon which to base an analysis of the individual (Bingham, 1937).

ITINERATE SERVICE. The counseling service must frequently be itinerant because of the residence distribution of the handicapped. Interviews take place in homes or at prearranged meeting places. Use of test materials is limited and standard conditions are extremely difficult to attain. The counselor necessarily seeks the cooperation of local agencies having contacts with the same clientele and undertake to develop the maximum utility of the available facilities and procedures adaptable to the situation.

COUNSELING

Counseling begins with explaining to the client the logic of choosing a vocation, cultivating self-understanding of his assets, liabilities, his problems, and needs. The techniques are identical with those used in counseling nondisabled persons (Williamson, 1939; Garrett, 1946). The applicant must be provided with realistic information about the abilities, physical demands, training required for various jobs and the opportunities for employment. He must be informed of and understand available facts, and must cooperate actively in working out occupational goals and program plans to attain these goals. The program plan must be feasible and congruent with the individual's potentialities, as well as his physical and mental condition, and since it is directed toward alleviating maladjustment, must be acceptable intellectually and emotionally to the applicant. Developing a plan frequently requires the most skillful use of counseling and interviewing techniques since carrying out the plan may affect members of the client's family or his dependents. This is particularly true for cases requiring psychiatric care, surgery, and hospitalization, and the presence of family, home, and financial problems. Further, the client must be motivated to the extent that his aptitudes and abilities may be skillfully used and his vocational goal attained. Finally, the selection of appropriate goals and services, the results obtained from these services, and the future welfare of the handicapped person and his dependents are contingent upon the quality of counseling service he receives.

PREPARATION FOR EMPLOYMENT

The variety of services which the state agency may utilize in preparing handicapped persons for employment have been previously indicated. State agencies do not maintain or operate their own facilities. Contracts are negotiated for the purchase of these services from facilities which meet standards established by the state agency.

The rehabilitation counselor is required to become intimately familiar with the wide variety of community and state resources and to establish relationships with these agencies in order that the needed services will be made available to the handicapped person. Such relationships can be established and maintained only when the counselor understands the functions and procedures of the agencies and performs his own functions well.

TRAINING. Knowledge of a great variety of training resources, to determine which one can be used practically for a particular client, is essential to the rehabilitation worker. At times it may become necessary to arrange modification of existing training or to stimulate the establishment of a new training opportunity to meet the specific needs of a client or group of clients.

The utilization of a variety of training facilities and types of therapy calls for a thorough understanding of the principles of learning and their application in a wide variety of situations. Failure to differentiate between training in an academic institution and "learning by doing" may force an applicant to a regime of training under which he will become discouraged, decide to discontinue, or develop an attitude of defeatism. Carefully selected training or therapy may be of therapeutic value in helping the client to develop a consciousness of power and ability to achieve and to give his individuality a chance to assert itself, thereby reducing to a minimum any feeling of inferiority or difference (Davis, 1946). It gives the handicapped person an opportunity to compensate in constructive ways for those characteristics which are unalterable.

Throughout the rehabilitation process the counselor must continue to have counseling contacts with the client and supervisory contact with the agency or agencies that provide service, until preparation for employment is complete.

PLACEMENT

Plans for placement take form during the preparation period. While other agencies may and do participate, responsibility for suitable placement after preparation rests with the rehabilitation counselor. This assignment is most difficult and counselors learn by experience to avoid plans which do not lead to employment. The test of rehabilitation is regular employment, consistent with preparation, at a wage commensurate with that paid other workers for similar work.

DISCRIMINATION

The rehabilitation counselor must be familiar with the placement techniques employed with the able-bodied, the problems of accident prevention and proneness (Viteles, 1935; Harvey and Luongo, 1946), and the compensation laws, and be prepared to overcome employer prejudice against employment of the handicapped. In spite of evidence to the contrary (Dietz, 1932; Brighouse, 1946) many employers continue to discriminate against the disabled because of some observable disability, even though the applicant is otherwise in excellent health and the disability in no way interferes with job performance.

During the war years, the urgent need for manpower resulted in the absorption of a greater number of handicapped workers in industry and government than at any other time. Numerous investigations were undertaken during this period to determine the efficiency of impaired workers and to prepare for the return to industry of disabled veterans. Although differing in method, sampling, and statistical treatment, these studies were in general agreement in that the handicapped are dependable, regular in attendance, careful in observance of safety regulations, loyal and satisfactory in the amount and quality of production.

FOLLOW-UP WORK

Following placement, contact must be maintained to make certain that the client has acquired the skills necessary to hold his job, is adequately adjusted to his employment, and is safeguarded against exploitation or discrimination. In contrast to many other vocational adjustment programs, rehabilitation responsibilities extend from referral to the attainment of an adequate occupational adjustment. While responsibility for one or more services may be shared with other agencies, nevertheless the responsibility for maintaining continuity of the client's program rests with the rehabilitation counselor.

VALIDATION OF SERVICE

During the past twenty-six years, the handicapped have demonstrated that they can establish their social and economic independence through the facilities of the rehabilitation program. Under the Federal-State program, 210,125 physically handicapped persons were rehabilitated into employment by the state during the period 1920–43, or an average of 9,135 annually. Since the enactment of the Vocational Rehabilitation Amendments the annual average has increased to 40,676 for the years 1944–46.

The economic return on the public investment in the rehabilitation of the handicapped is evidenced by a comparison of earnings before and after rehabilitation. For example, in 1946, 36,106 handicapped persons were rehabilitated into employment. Of this number only 25 per cent were employed at the time of application and 16 per cent had no previous employment experience. The approximate total earnings of the 36,106 were increased from $11,600,000.00 before rehabilitation, to $56,300,000.00 after rehabilitation, an increase of approximately 400 per cent.

The value of rehabilitation service to a handicapped individual cannot be measured solely in terms of dollars and cents. The restoration of self-respect, confidence, and independence represents social values that are perhaps more significant than economic values. Through the reestablishment of economic independence, morale is restored, citizenship improved, and man power conserved.

FUTURE DEVELOPMENT

The duties and responsibilities of the vocational rehabilitation counselor are fundamentally similar to those of other vocational counselors who assume a continuing responsibility until an adequate occupational adjustment is attained (Dabelstein, 1946; Paterson, 1940). The same psychological techniques, principles, and procedures are employed as in any vocational adjustment program. Vocational rehabilitation offers a challenge to the guidance counselor or psychologist beyond that inherent in academic guidance programs. Psychologists and psychological research can and should make a significant contribution to the conservation of human resources.

NEEDED RESEARCH

Examination of the meager literature in vocational rehabilitation reveals serious gaps in our knowledge of the vocational adjustment problems of the handi-

capped. Until such gaps are filled, the development of effective services for the handicapped will be slow. A research program in rehabilitation must take cognizance of the results of related investigations pursued on a more extensive scale by workers in a variety of fields. The repetition of these investigations with groups of handicapped may yield significant results.

MEASUREMENT

One of the major needs is the refinement of psychological measuring instruments for the rehabilitation service and the development of a greater variety for use at the adult level. Although clinical counseling techniques and procedures developed during the past decade have gone far to place guidance on a scientific basis, this development has in the main been restricted to college students or workers in the higher occupational levels. It is for specific types of handicapped persons (Hayes, 1946) and for jobs on the skilled and semiskilled levels that rehabilitation counselors find their greatest need for psychological tests.

VALIDATION

The rapid expansion of the program of counseling in rehabilitation has far outstripped the scattered efforts of research workers to evaluate the outcomes. A few attempts at follow-up of rehabilitated clients have been made, consisting of a review, usually a year or two after rehabilitation, to determine the number still employed and the shift in wages. To find a large percentage still employed and receiving the same or higher wage is no reason to infer the adequacy of either the counseling or the program of services, because one might rightfully assume these results were attained in spite of either process. Kemna (1945) secured from the clients of the Minnesota Rehabilitation Division their frank appraisal of the services rendered them. The clients found the services of this agency exceedingly valuable to them and the favorable responses to her questionnaire far outnumbered the proportion recorded in studies of similar vocational adjustment programs.

Validation of the specific techniques employed by rehabilitation personnel has in general been ignored. Many rehabilitation workers emphasize the limitations of objective testing techniques employed in counseling programs and overlook their advantages. If the techniques employed by these workers showed comparable validity and reliability when exposed to the same rigid statistical scrutiny as measurement, it might be interpreted that rehabilitation programs are in a fairly healthy state.

CONCLUSIONS

The vocational problems of the handicapped are as significant as those of the able-bodied. The improvement of analytical techniques through research should be equally attractive to the psychologist. If the number of research studies with the disabled approached the number of studies of college students, one could expect a comparable improvement in the counseling and rehabilitation program for the handicapped.

READING REFERENCES

Barker, Roger G.; Beatrice A. Wright; and Mollie R. Gonick, *Adjustment to Physical Handicap and Illness: A Survey of the Social Psychology of Physique and Disability*. New York: Social Science Research Council, Bulletin No. 55, 1946.

Blauch, L. E., *Vocational Rehabilitation of the Physically Disabled*. Washington, D. C.: Government Printing Office, 1938.

Bridges, C. D., *Job Placement of the Physically Handicapped*. New York: McGraw-Hill Book Company, Inc., 1946.

Brighouse, G., *The Physically Handicapped Worker in Industry*. Pasadena: Industrial Relations Section, California Institute of Technology, Bulletin No. 13, 1946.

Dabelstein, D. H., "Counseling in the Rehabilitation Service." *Journal of Clinical Psychology*, 1946, **2**, 116–122.

Davis, John E., *Rehabilitation, Its Principles and Practice* (rev. ed.). New York: A. S. Barnes & Co., Inc., 1946.

Dietz, J. W., "An Experiment with Vocationally Handicapped Workers." *Personnel Journal*, 1932, **10**, 365–370.

DiMichael, S. G., and D. H. Dabelstein, "The Psychologist in Vocational Rehabilitation." *Journal of Consulting Psychology*, 1946, **10**, 237–245.

Garrett, A. M., *Counseling Methods for Personnel Workers*. New York: Family Welfare Association, 1945.

Harvey, V. K., and E. P. Luongo, "Principles of Industrial Physiology and Psychology Related to the Evaluation of the Working Capacity of the Physically Impaired." *Occupational Medicine*, 1946, **1**, 1–47.

Hayes, S. P., *Vocational Aptitude Tests for the Blind*. Watertown, Mass.: Perkins Institution, 1946.

International Labor Office, *The Training and Employment of Disabled Persons: A Preliminary Report*. Washington, D. C.: International Labor Office, 1945.

Karpinos, B. D., "The Physically Handicapped." *Public Health Reports*, 1943, No. 58, 1573–1592.

Kratz, J. A., "Security for the Handicapped." *Annals of the American Academy*, 1939, **202**, 100–104.

Lee, E.; M. A. Cartwright; et al., "The Social and Vocational Rehabilitation of the Tuberculous." *Occupations*, 1937, **15**, 581–631.

Odoroff, M. E., "Occupational Background of Cerebral Palsy." *American Journal of Mental Deficiency,* 1945, **49,** 369–372.

Office of Vocational Rehabilitation, *Efficiency of the Impaired Worker: A Review of Information on the Experience of Employers of Handicapped Workers.* Washington, D. C.: Rehabilitation Service, 1946.

Paterson, D. G.; J. G. Darley; and R. M. Elliott, *Men, Women, and Jobs.* Minneapolis: University of Minnesota Press, 1936.

———; G. Schneidler; and E. G. Williamson, *Student Guidance Techniques.* New York: McGraw-Hill Book Company, Inc., 1938, Chap. 12, "Guidance—A Professional Service."

Pintner, R.; Jon Eisenson; and M. B. Stanton, *The Psychology of the Physically Handicapped.* New York: Appleton-Century-Crofts, Inc., 1941.

Stead, W. H., et al., *Occupational Counseling Techniques.* New York: American Book Company, 1940.

CHAPTER XVI

THE ARTS: CONTRIBUTIONS OF APPLIED PSYCHOLOGY

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102. Music	Carl E. Seashore
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101. THE ARTS OF COLOR AND FORM

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The arts of color and form include a vast array of objects: buildings, furniture, utensils, clothes, printed matter, handcrafts, painting, and sculpture. They range from salt shakers to cathedrals, from magazine advertisements to mural paintings. They are bound together by the fact that men have given attention to their appearance and to their expressive qualities.

Such diversity of size, shape, material, and purpose does not facilitate comprehensive, systematic study. Should each subpart, such as architecture, be studied by itself, or should the common characteristics, such as color, be analyzed? In general, psychologists have followed the second pattern. Although many informative observations on painting, sculpture, architecture, and industrial and commercial design are of a somewhat psychological nature, they can hardly be said to belong to applied psychology. Because of the methodology employed, the material reported below may be called psychological.

PROBLEMS

The major questions to be answered in gaining a better understanding of man's behavior in relation to the arts and color and form are: How do people respond to different forms and colors? What are the characteristics of appreciative and creative activity in this area, and how can they be developed? This area has not yet been intensively explored, and the limited data available do not provide clear-cut answers. Nevertheless, a sizable body of data appears in the bibliography compiled by Chandler and Barnhart (1938), and the results of studies reported Fechner (1876) established the empirical science of attention.

METHODS

Fechner (1876) established the empirical science of esthetics as a supplement to the philosophical approach. He believed that by working "from below," by gathering facts and working inductively, definite principles could be developed. His development of three basic methods was a substantial contribution to psychological methodology: *choice* or *selection,* in which the subject indicates his preference for one of two or more objects; *adjustments* or *construction,* in which the subject alters an object, such as a rectangle, until it is most pleasing to him, or in which he produces the object; and *application* or *use,* in which a careful study of the characteristics of art objects already produced is made. The method of choice or selection includes such techniques as the ranking method, the order-of-merit method, and comparison by pairs. Rating scales and inventorying techniques are developments of these methods.

For some time following Fechner's aforementioned work there was a pronounced tendency to favor strictly objective methods in an effort to make the psychology of art unimpeachably scientific. The failure, however, of such limited techniques to solve the basic problems of artistic production and appreciation has led recent investigators to use a variety of methods which, although not always leading to quantified results, yield pertinent insights and understandings (Munro, 1928, 1941). These methods, similar to those employed in other areas of psychology, include introspection, projection, observation, and experimentation.

COLOR AND FORM

Color has three characteristics: hue, value, and saturation. Hue, often referred to as the name of a color, such as red or blue, is determined by the wave lengths of the light. Value, also called brightness or luminosity, refers to the lightness or darkness of a color. Saturation, sometimes called chroma or intensity, describes the purity or dullness of a color. In the study and use of color, each of these characteristics is important and is usually studied separately.

The human eye can perceive many gradations of these three characteristics, the exact number varying widely among individuals. Chandler (1934) estimates that on the average 200 gradations of value, 150 gradations of hue, and 20 gradations of saturation may be distinguished. This sensitivity, however, means little to the artist because the color range available to him is limited. In the matter of value, for example, Ogden (1938) points out that although sunlight is 800,000 times brighter than moonlight, white paper reflects only about 60 times as much light as does black paper. Similarly, hues possessing the purity and saturation of those in the spectrum are not to be had in pigments, a fact which limits the scope of the artist.

Color has been studied, in one way or another, by men with varied interests, such as, physicists, chemists, engineers, psychologists, artists, and philosophers, and each has added to the fund of knowledge. The psychological study of color has centered on investigations of preferences and effects, both of which may be readily measured.

COLOR PREFERENCES

Study of color preferences has direct value to advertisers, industrial designers, and architects, for it offers suggestions for designing products that will have maximum mass appeal. The more important studies have been summarized by Chandler (1934) and Woodworth (1938). In addition, the experiments of Guilford (1933, 1934, 1940) and Allen and Guilford (1936) have contributed to our knowledge of the subject.

In general, these laboratory studies of preferences for single colors show that red and blue are the most popular hues, yellow and orange the least popular. Guilford (1933), studying the preferences of approximately 1300 subjects over a period of fourteen years, places them in the following order of preference: red, blue, violet-blue, violet, green-blue, green, violet-red, blue-violet, red-violet, green-yellow, orange, orange-red, yellow-orange, yellow, orange-yellow, and yellow-green. He believes that in spite of wide individual differences, sex differences, and year-to-year fluctuations, the persistent and more or less consistent differences indicate underlying biological factors that help determine preferences. In analyzing the relative importance of the three dimensions of color in determining its affective value, he found hue to be first in importance, value second, and saturation third. Chandler (1934), summarizing the results of 13 groups under 8 experimenters shows that blue was first with 9 groups, red with 1, green with 2, and violet with 3.

The exceptions, however, are as noteworthy as the generalizations. It has been demonstrated that color preferences vary with age, sex, and school attainment. Socio-economic differences are also important, as illustrated by a study that showed that 50 per cent of the toothbrushes sold in 10-cent stores had red handles, while those with amber handles were most popular in stores with higher priced merchandise. No thorough study comparing color preferences in one country with those in another has been made, but scattered observations, such as the fact that, whereas the people of one Oriental nation do not like red those of another do not like blue, lead one to doubt the existence of a universal scale of preferences.

Most of the studies to date have treated color purely and abstractly, divorced from any use or application, and therefore have limited meaning in specific situations. In a recent study of color preferences for advertisements of differing types of products, it was found that yellow and orange were preferred for publicity on building materials and green and yellow were most favored for advertisements of summer beverages. These results are clearly not in harmony with the usually quoted order. Colors unpopular in the laboratory are often regarded as highly pleasing in nature, to wit yellow-green is the least popular color in Guilford's list, yet the yellow-greens of spring foliage are universally admired, and although orange-red and yellow-orange are well toward the bottom of the list, the majority of persons find great pleasure in sunsets. On the other hand, a bank which put out identical booklets with covers in 12 colors found that dark blue was most popular and light orange least popular. These few examples indicate that preferences for colors seen in context *may* or *may not* coincide with the results of controlled experiments. Thus, for practi-

cal purposes the problem is less one of establishing an absolute hierarchy of preferences than of studying each color problem as a realistic unit.

In addition to group differences, the matter of individual differences deserves more prominence than it is ordinarily given. Although statistically significant orders of color preferences can be established, the variation is as interesting as is the central tendency. Fairly sizable groups regard each color as most pleasant, while others place it at the bottom of the list. No studies have shown unanimity of opinion.

The results of studies of pleasantness of color combinations concerning which there are supposed to be fairly definite rules give little evidence to support such a contention. It appears that any color combination may at times be pleasing and at other times not. Furthermore, a combination may be pleasing for one purpose, displeasing for another. Allen and Guilford (1936) found that the effective value of color combinations is rather highly related to the value of the individual colors, that very large or very small differences in hue are likely to be more pleasing in combination than are medium differences, and that large value contrasts are preferred. Again, these generalizations should be applied with great caution, remembering always that what may be pleasing in the monotony of a laboratory experiment might be distracting in a living room or a dress.

EFFECTS OF COLORS

In summarizing several studies on expressiveness of color, Chandler (1934) discusses a comprehensive study by Von Allesch. When subjects were exposed to color stimuli and asked to describe their reactions verbally, the responses evinced the variety and richness with which people react to color. Colors were referred to as sad and happy, warm and cool, strong and weak, loud and soft, sweet and bitter, sickening, costly, tyrannical, etc. In many instances, different observers regarded the same color as sad and happy, brilliant and faded, or warm and cool. On only a few was there no disagreement, for example, *breathlike* and *pale* were applied only to light colors; *gloomy* only to dark; *cold* never to saturated red, orange, or yellow; *warm* never to saturated blue; *intensity* or *strength* never to lighter colors; and *cheerfulness* rarely to grayish, whitish, or blackish colors. Other studies support the general conclusion that although people do not respond to the expressive values of colors in random fashion, their reactions are far from standardized.

Such studies done under laboratory conditions, however, do not always accurately reflect the responses made in the normal routine of living, where traditional symbolism plays an important role. Thus, in most Occidental countries black is associated with death and mourning, white with purity, and purple with royalty. Although such associations are undoubtedly determined by social conventions, this in no way diminishes their importance in predicting the effects of color.

In the theatre, color has long been used for its expressive value. Comedy scenes are invariably played in yellow light, tragic episodes in cooler light. Architects and painters more often than not use red, orange, or yellow when they wish to produce a stimulating, exciting effect; green for a fairly neutral, tranquilizing effect; and blue or violet for subduing, grave, or solemn effects. Similarly, high values are used to induce cheerfulness, low values for dignity.

A number of realistic studies have recently been conducted in commerce and industry which relate to both the pleasantness and the expressiveness of color. One large firm designed families of packages to distinguish their various wares: automotive supplies were put in packages designed in strong simple bands of rich red and blues; household necessities in packages of green and white; and cosmetics were packaged in gay designs of light blue and pink. Color experts, stylists, industrial designers, and architects have also begun to apply the accumulated knowledge of color science to such diversified ends as making hospitals more cheerful, schoolrooms more stimulating, and factories less fatiguing. They have found that color has an appreciable effect on the apparent temperature of a room. When a liberal amount of orange was added to the decor of a restaurant which had formerly been decorated in cool colors, requests for more heat ceased. Making salable wares more attractive to prospective customers has led to a study of which colors are most effective backgrounds for merchandise. An example of this is a chain of meat markets which changed its white walls to blue-green and its ordinary yellow sawdust to green, to make its meats appear a brighter, more appetizing red.

PLEASANTNESS OF LINE AND FORM

It would be of very real advantage to artists and businessmen if pleasantness of line and form could be predetermined in an objective manner. The attempts to solve this problem, inaugurated by Fechner

and carried forward by several investigators, have been summarized by Chandler (1934), Woodworth (1938), and Ogden (1938). One theory held that lines and forms based on simple ratios, such as 1:2, 2:3, and 3:4, were most pleasant. A rival theory held that the more subtle and complex of the "golden section," in which the whole is to the larger part as the larger is to the smaller (expressed by the ratios 1:2:3:5:8:13, etc.), were more pleasant. A number of exhaustive experiments have led some experimenters and practicing artists to believe that the secrets have been found, but to many others the results seem inconclusive, or arbitrary. Although there is a tendency for preferences to cluster near those forms having the ratio of the golden section, in very few instances is there marked preference for the forms having exactly the ratio of the golden section. Individual variation is great even under laboratory conditions, where such considerations as use and association were excluded as far as possible. No work to date provides a comprehensive and valid mathematical basis for esthetic pleasure in visual forms. This is in contrast to pleasantness of musical sounds, which is directly related to mathematical ratios. Such general criteria as moderation, simplicity, and comprehensibility are as near as we can now come to defining universally pleasant forms.

Growing out of these studies have been a number of attempts to find formulae by which the pleasantness of form can be tested and predicted. The best known design system is that of *Dynamic Symmetry* developed by Jay Hambidge. Applied cautiously, the principles of dynamic symmetry become a partial substitute for creative insight and sensitivity in aiding the artist to find pleasing forms, but little else can be said for them.

EXPRESSIVENESS OF LINE AND FORM

Several studies of the expressiveness of lines, especially those of Lundholm (1921), Poffenberger and Barrows (1924), and Hevner (1940), resulted in more nearly uniform and useful conclusions than those of preferences. Although there is considerable variation in the results, a few generalizations are valid: big downward curves are interpreted as serious, weak, sad, or sometimes lazy; big horizontal curves express quietness or gentleness; small or medium upward curves express playfulness or merriment; small angles and curves generally express agitation and fury. Observation of the expressive qualities of line and form in painting, sculpture, and architecture in general bears out these conclusions.

In dealing with line and form, as with color, pleasantness and expressiveness are closely related to specific situations. Abstracting line and form from their purpose and from the materials in which they exist is interesting, but the results can be interpreted only in abstract terms. Any generalization must be carefully tested before it can be applied with confidence to a specific problem.

CREATIVITY AND APPRECIATION

THE CREATIVE PROCESS

Creative work in the arts has much in common with creativity in other fields, even though many have believed—or at least hoped—that the arts were in some way "special." Our best source of data, the writings and studies of creative men in all fields, indicates that the processes by which a building is designed, a picture envisioned, or a complex mathematical problem solved are essentially similar. There appears to be a period of incubation during which materials are gathered while the restless impulse to create becomes more explicit and intense. The actual inspiration to create usually comes suddenly as the result of some happy incident or combination of circumstances that furnishes a clue or starting point. Following this is the period of verification or elaboration in which the outline, tentatively established, is developed, completed, and criticized. Artists are likely to give more attention to the inspiration, scientists to the periods of incubation and verification, but there is probably no basic difference in the process. The difference lies chiefly in the product, for the work of art, such as a building by Frank Lloyd Wright or a painting by Picasso, embodies much of the emotional excitement that accompanied or accounted for its creation, while the work of science or logic, such as a mathematical formula, is coldly objective and contains no hint of the process by which it came into being. Although the actual "spark" of creation remains illusive, psychology has been able to show us something of the path along which creative ability passes from the conception of the idea to its consummation.

Munro (1941) lists as components of creative ability the simpler kinds of sensory discrimination; the perception of complex visual forms; the ability to imagine vividly complex, original forms; and emotional, conative, and motivational factors. Meier (1939), as the result of a ten-year study of the deter-

miners of talent, finds evidence pointing to six complex abilities and functions that are peculiarly interrelated. He believes that three of the factors, manual skill, volitional perseveration, and esthetic intelligence, are primarily the result of heredity. The other three, perceptual facility, creative imagination, and esthetic judgment, he believes to be more directly related to training.

FOSTERING OF CREATIVE ABILITY

A major concern of those responsible for the art programs of schools, colleges, and professional schools is the fostering and training of creative ability. Defined as deviation from rather than conformity to average performances, creativity does not always flourish under one set of conditions. Some persons produce best under pressure, others under leisurely conditions; some under definite requirements, others with more freedom. Underlying all creativity is the recognition of a problem to be solved or the presence of an urge that must be satisfied. An educator interested in developing this ability in his students should first awaken them to problems that have real significance in their lives, and then should guide them in developing the requisite skills. The imposition of routine methods of creation is not only a contradiction in words but a contradiction in philosophy.

APPRECIATION OF ART

The appreciation of art has been defined as everything from a cold-blooded, impersonal evaluation of art objects to a "goose-flesh response to music, dancing, and painting." The various definitions are evidence of the variety and complexity of the reactions that fall under this heading. Not only do individuals differ one from another, but the responses of the same individual vary markedly depending on the type of object he is appreciating. Furthermore, many differ from time to time in appreciating the same object.

In spite of these variations, appreciation has certain basic characteristics. It is a complex reaction in which the whole organism responds in a unified way; perceiving, thinking, and feeling are intimately bound together. Another dominant characteristic is the centering of attention on the object for what it is in itself, for what it expresses, rather than on such factors as what useful purpose it serves, when and by whom it was made, or how much it cost. The ways in which different persons observe a tree exemplifies this point. A lumberman looks at a tree to see how much lumber it contains, a botanist is interested in its classification and habit, and a weary traveler regards it as protection from sun or rain. In contrast, a person regarding a tree esthetically looks at it as an object expressing the fundamental, growing forces of nature; as an organization of pleasing forms and colors; as an object meaningful in itself.

Other qualities of appreciation, still vague because of the many experiences that psychology has not yet understood and explained accurately, are the significance, intensity, and dignity that distinguish appreciation from more mundane experiences. Furthermore, appreciation is pleasant in affective tone, for even the tragic and ugly when given esthetic form provide pleasure. In contrast to a commonly held belief, appreciation is a highly active state during which the person is unusually alert and attentive; it is not a passive state of blotter-like absorption. Finally, judgment usually enters even though the evaluation may not be brought sharply to the conscious or verbal level. These characteristics have been isolated by introspection, on the part of sensitive persons, by observing the behavior of persons appreciating art, and by studying the reports of creative artists and critics.

Training in appreciation, along with the development of creative ability, is a major purpose of art programs in schools and colleges. Consequently, educators and psychologists have studied its nature and the ways in which it may best be developed. There are data concerning one aspect of appreciation, namely art judgment, defined as "the recognition of merit in art objects." Faulkner (1940), summarizing the results of several investigations, reported the following. First, that the ability to evaluate art objects develops from early childhood through adolescence, but improves little beyond that point except with special training. Second, the ability to evaluate objects in one field of art, such as painting, is not highly related to the ability to evaluate objects in other art fields. Third, the relation of art judgment to test intelligence, although generally positive, is low. Ziegfeld (1946) found that the amount of improvement in judgmental ability is directly related to the methods used in the teaching situation. In his experiment, a clear analysis of the factors underlying art judgment together with practice in making judgments proved to be the most effective method. This, of course, is not surprising, but contrasts sharply with typical practices at all levels of instruction where improvement

in the ability to evaluate art objects, as well as in all other aspects of appreciation, is treated as a by-product of other activities.

TESTS

TESTS OF ART JUDGMENT

The measurement of art appreciation has not proceeded far enough to provide any completely satisfactory tests. Appreciation is a complex reaction, and, in the necessary process of simplifying testing procedures, the essential nature of the reaction is easily overlooked. Nevertheless, important contributions, summarized by Kinter in 1933, have been made.

Several tests, based on the order of merit technique, have been developed to measure art judgment. The Meier-Seashore Art Judgment Test (Meier and Seashore, 1929 and Meier, 1930) and a revised version, The Meier Art Tests, I. Art Judgment (Meier, 1940, 1942) both present a series of paired pictures, one a mutilation of the other, from which the subject selects the better. The McAdory Art Test (McAdory, 1929 and Siceloff and Woodyard, 1933) presents a variety of art objects, each rendered in four versions, which the subject ranks in order. Faulkner (1939) constructed discrimination tests in architecture, painting, sculpture, and the industrial arts. The Minnesota House Design and House Furnishing Test (Brown and Puhr, 1936) deals specifically with the design and arrangement of a house as an art problem. Validated primarily on the opinions of art experts as to the comparative merits of the objects, these tests compare the performance of each subject with that of a group of experts.

TESTS OF ARTISTIC PRODUCTION

Tests of artistic production have encountered even greater difficulties than those of art judgment, and have, consequently, tended to focus on the more concrete but mechanical phases of the process. Thus, the Tests of Fundamental Abilities in Visual Art (Lewerenz, 1927) were developed as a battery of nine tests to measure such abilities as discrimination of color, visual memory of proportion, observation, analysis, originality, and recognition of esthetic proportion. The Art Ability Test, developed by Knauber and Pressey (Knauber, 1932) to give a definite and objective measure of different degrees of artistic talent, is a performance test in which memory, observation, accuracy, ingenuity, creative ability, and critical faculty are measured. The Selective Art Aptitude Test (Varnum, 1940) is designed to measure talent in art for professional guidance by measuring a series of specific abilities. With the possible exception of the last-mentioned test, which has not been validated adequately enough to permit critical evaluation, no available test is a dependable measure of creative art ability.

VALUES

The arts of form and color have value in a great variety of areas of life. Our homes are made more functional and attractive through the efforts of architects, interior decorators, landscape architects, and the designers who create the furnishings and equipment. The city planners give order to communities, and civic architecture embodies in material form the thoughts and aspirations of the group. Commerce and industry have recently found that expert attention to the appearance of their products pays good dividends. Religion, today as throughout its history, has relied on the architect, painter, sculptor, and craftsman to provide temples for worship.

Finding pleasurable expression of the creative or appreciative urge through the arts of form and color has always been a basic experience of mankind. Even though few persons carve or paint, many get satisfaction from arranging furnishings in their homes, from making furniture, or from other types of handwork. The therapeutic values of art in treating maladjusted personalities is well recognized.

READING REFERENCES

Chandler, A. R., *Beauty and Human Nature*. New York: Appleton-Century-Crofts, Inc., 1934, Chap. 3, "The Pleasantness of Visual Forms"; Chap. 4, "Expressiveness of Visual Forms"; Chap. 5, "The Pleasantness of Color"; Chap. 6, "The Expressiveness of Colors."

Meier, N. C., *Art in Human Affairs*. New York: McGraw-Hill Book Company, Inc., 1942.

———, "Recent Research in the Psychology of Art," Chap. 26 in National Society for the Study of Education, *Fortieth Yearbook: Art in American Life and Education*. Bloomington, Ill.: Public School Publishing Company, 1941.

Munro, T., "The Psychological Approach to Art and Art Education"; "Creative Ability in Art and Its Educational Fostering"; "Powers of Art Appreciation and Evaluation"; "The Analysis of Form in Art," Chaps. 21, 22, 23, and 24 in National Society for the

Study of Education, *Fortieth Yearbook: Art in American Life and Education.* Bloomington, Ill.: Public School Publishing Company, 1941.
Ogden, R. M., *The Psychology of Art.* New York: Charles Scribner's Sons, 1938, Chap. 8, "Color"; Chap. 9, "Geometrical Design."
Woodworth, R. S., *Experimental Psychology.* New York: Henry Holt and Company, Inc., 1938.

102. MUSIC

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Many sciences have contributed to the science of music. For example, physics contributes exact knowledge about the nature and the laws of musical sounds and their measurement, and in this there are specialized fields, such as acoustics and the electrical aspects of sound recording and transmission. Anatomy and physiology, which describe the organs which have to do with hearing, explain all forms of tone production and how they function. Mathematics furnishes foundations for the theory of harmony and other art forms. Biology gives a theory and verified facts about the nature, extent, and laws of heredity. Musical anthropology gives a history of the evolution of music from primitive times to the present. Genetics deals with the evolution of music in the race and the development of music in the individual. Psychiatry deals with deviations from the normal, such as type of temperament and musical genius. Psychology contributes the fundamental scientific interpretation of human experience and behavior.

It has come to be the business of the psychology of music to integrate and interpret the findings from all scientific sources bearing on the subject and to conduct research in music in the light of this knowledge. We may therefore define the psychology of music as that science which deals with musical experience and behavior. It is both theoretical and practical. The present section is limited to certain practical aspects.

THE MUSICAL MEDIUM

Everything that is conveyed from the performer to the listener in music is conveyed by sound waves. It is therefore important that the student of music should have a practical knowledge of the nature of musical sounds. The science of musical sounds is now well developed through an understanding of acoustics, which leads to a classification of musical sounds, exact terminology, and familiarity with the limits and possibilities in this medium of art.

All sounds can be reduced to four elements in terms of the measurable characteristics of sound waves, namely, frequency, intensity, duration, and form. Every sound in music can be explained in these four terms by means of which we can define and describe all the terms used in music, such as melody, harmony, rhythm, tone quality, volume, and artistic variants and complexes, as we hear them in actual music. In such work, we must draw upon available musical knowledge in view of the scientific insight into the nature of mental life.

Take as an example the concept of timbre, which is the technical name for "kind of tone." It is expressed in terms of the form of the sound wave. The wave can be photographed with precision and analyzed into its components, namely, the fundamental and its overtones. These can be represented in what is known as a tone spectrum, showing the number of overtones present, how they are dis-

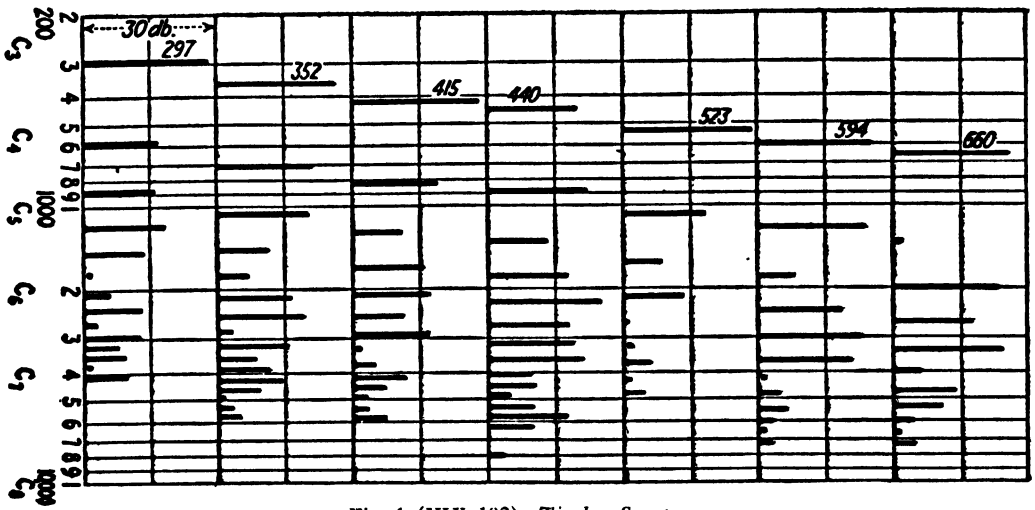


Fig. 1 (XVI-102): *Timbre Spectra*

This figure shows a series of spectra from different pitches in the violin tone as played by Small on the D-string of a good violin (from Seashore's *Psychology of Music*). The pitch of tones is represented by the number of vibrations. The fundamental and its overtones are represented by vertical bars that show the number of overtones present and their distribution in pitch. The first bar corresponding to the number of vibrations indicated is the fundamental. The relative amount of energy in the fundamental and in each overtone is represented by the height of the bar. Observe what a mass of specific facts is represented by a single spectrum and how spectra for different pitches may be compared.

tributed, and the relative amount of energy in the fundamental and each overtone. The musician can become familiar with such tone spectra just as he becomes familiar with ordinary musical notation, and he can think and speak in terms of them. In terms of such a spectrum, he can define every kind of musical tone scientifically and scrap scores of terms in the prevailing musical jargon which aim at the same thing but are not well understood, are unnecessary, and lead to constant confusion. In the light of such organized knowledge of the musical medium, applications may be made to the understanding of the operations in the mind of the composer, the performer, and the listener.

A MUSICAL MIND

The student of music begins with the questions: Am I musical? If so, in what respects and to what degree am I naturally musical? A person is musical to the extent that he has more or less natural aptitude for musicianship. He is unmusical to the extent that he lacks essential endowments. Let us list some of the questions a serious student of music must ask himself:

Do I have musical hearing? This question reduces itself to a number of specific questions, such as, Do I have a good sense of pitch, which is the basis for the hearing of melody and harmony? Do I have a good sense of loudness, which is the basis for the hearing of all dynamic aspects of music and is essential to the appreciation of musical expression and interpretation? Do I have a good sense of time, which enters into the hearing of all the temporal aspects of music? Do I have a good sense of timbre, one of the two basic elements of tone quality representing the ability to hear differences in kinds of musical tones? Do I have a good sense of rhythm? Am I earminded as distinguished from eyeminded? Do I have a natural capacity for musical expression in terms of pitch, loudness, time, and timbre through voice or instrument? Excellence in the ability to control particular elements, such as pitch, time, and quality of tone, determines the choice of instruments and the choice of the type of music to perform. This again must be answered in terms of the specific content of music, namely, memory for the tonal, the dynamic, the temporal, and the qualitative aspects. Do I have artistic memory, imagery, and imagination? These characteristics are sometimes referred to as the capacity to live in a tonal world —the ability to create, interpret, and give artistic form to music in the absence of the physical sounds, as in composing without reference to an instrument and in musical criticism. Do I like music? That is,

do I have a strong natural feeling, craving, or urge in the form of a musical emotion which draws me to music and is a basis for genuine musical appreciation? Do I have a natural musical intelligence, the ability to understand music, to theorize, to criticize, and most of all, to create music in logical and formal artistic content?

In all of these respects there are enormous differences. Of two persons of equal intelligence, education, and age, one may be one hundred times as competent as the other in such natural abilities, quite regardless of training. One person may be very high in one or more of these particular abilities while low or average in one or more of the others.

ANALYSIS OF MUSICAL TALENTS

A talent is a natural capacity for a specific type of achievement. It is an inherited trait and is usually spoken of as "natural aptitude." Development of a talent results in achievement which we call "ability." A superior talent gives promise of a corresponding type of superior achievement; an inferior talent acts as a corresponding impediment to achievement. In the musical mind we recognize a hierarchy of talents which run from the elementary sensory and motor processes up through the higher intellectual, emotional, and motor processes. A superior talent for pitch is a foundation for superior achievement in all avenues of pitch. A superior auditory memory, auditory imagery, general intelligence, or creative imagination may give rise to superior musical ability or achievement along the line of each of these resources. On the other hand, a low degree or relative absence of any talent acts as an impediment throughout that particular aspect of music. Typically, we may say that as is a man's general intelligence, so is his musical intelligence, both in appreciation and in performance. Many aspects of musical talent may be reasonably isolated for measurement; likewise, corresponding elements of musical achievement may be identified for measurement. There is, however, no sharp line to be drawn between musical capacity and musical achievement because environment acts upon the native stock from earliest childhood. We may, however, make helpful approximations in assigning credit to inheritance and environment respectively.

The analysis of talent is somewhat analogous to the description of your home in terms of snapshots from various angles outside and specific features of the interior. Each shot represents a feature, but every feature is a functioning part of the whole. We can isolate and take snapshots of aspects of a musical ear, musical memory, and musical performance, each of which is a working part of the musical mind.

Among musicians there are two points of view: first, that of those who want to know whether a child is musical or unmusical and express this in a single index which might be called "musical I.Q." The difficulty about this measure is that it gives no scientific information about the kind or degree of talent present. Likewise, in the evaluation of musical achievement as an unanalyzed unit, we gain little or no knowledge of the particular qualities of musical achievement, which always vary with the musical type. On the other hand, the scientific approach seeks a profile instead of a single index, both for natural aptitude and type of achievement. This has the advantages of accuracy of description and measurement and richness of verifiable detail. Such snapshots of the musical mind may be taken before musical education is begun and are therefore of value in musical guidance. Corresponding measurements or evaluation of musical achievement are essential to a scientific interpretation of musical achievement or musicianship.

Three Musical Profiles

Talent	10-9 Poor	8-7 Low	6-5 Average	4-3 Good	2 Excellent	1 Superior
Sense of pitch	p		a			s
Sense of loudness		p		a		s
Sense of time		p	a		s	
Sense of timbre		p		a		s
Sense of rhythm	p				a	s
Sense of volume			p	a	s	
Sense of consonance		p	a			s
Sense of tone quality	p		a			s
Control of pitch	p		a			s
Control of loudness			p		a s	
Control of time		p	a		s	
Control of timbre		p		a		s
Control of rhythm			p	a		s
Control of volume			p	a	s	
Control of consonance	p		a			s
Immediate memory			p a			s
Sustained memory		p			a	s
Musical imagery	p		a			s
Musical feeling		p	a			s
General intelligence		p			a	s
Emotional stability		p	a			s
Creative ability	p		a		s	

The scale of talent is in terms of deciles. The profile at the left, *p*, we might call the distinctly unmusical; the one at the right, *s*, highly musical; and the middle one, *a*, average. The degree of talent is indicated by the horizontal position of the letters. The items here listed are perhaps among the most significant, but the list could be extended indefinitely, if time and facilities were available.

The items in the table above may be measured in the laboratory or in the studio with varying degrees of precision. For the measurement of the first sixteen, we have laboratory instruments available. The remaining items are, as a rule, approached with a system of objective analysis in rating. All of the items can be subdivided into specific features. Like the camera snapshots of a house, they give us information about the most representative features. Where facilities are available, a profile of this kind can be made of a child before systematic, technical musical education is begun, for example, at the age of ten. The profile gives pupil, parent, and teacher valuable insight as a basis for guidance.

GUIDANCE IN MUSIC

Since there are such very great individual differences in the gift of music and since the art is pursued mainly for the pleasure in successful achievement, both vocational and educational guidance assume an important role. For several reasons, a guidance program in music can be set up as a model for guidance programs in general. To proceed satisfactorily, there must be three sources of information: first, a musical profile based upon a limited number of measurements; second, a case history dealing with inheritance, musical environment, spontaneous activities, and achievement; and third, an individual audition based on profile and case history. This guidance may take place in the public school systems, in music schools, or in musical organizations, and it may include remedial work in analysis of failures in musical achievement.

In the public schools, dragnet surveys may be made for the discovery and encouragement of latent musical talent. In the music division of the public schools talent analysis may be useful in the placement of instruments and recommendations concerning the purchase of instruments, segregation of instrumental classes, cooperation of the music teacher in the study of unusual cases, a check on accomplishment in relation to ability, cooperation with various organizations interested in child guidance, and clinical location for aid in remedial treatment.

The use of talent analysis in selecting students for admission to a music school is best illustrated in an intensive ten-year experiment conducted in the Eastman School of Music. The procedure is well established for actual selection of intake on the basis of prediction for musical achievement through education. All candidates for admission are divided by the psychologist into five classes—discouraged, doubtful, possible, probable, and safe—before they are admitted. The critical point for admission is set by the school on the basis of experience of many years. None of the discouraged is now admitted; some in the doubtful group may be admitted conditionally. It is fully recognized that success in musical education depends, not only upon talents and training, but upon numerous other factors, such as the will to achieve, personality, and social and economic resources.

The ten-year experiment at Eastman was conducted to determine what degree of prediction could be made upon a talent profile alone. For 565 entrants in four successive classes at the college level, six items—pitch, loudness, time, consonance, immediate memory, and intelligence—were measured by Dr. Stanton, the school psychologist. It was shown that successful graduation within four years was achieved by 17 per cent of those classed as discouraged, 23 per cent of those classed as doubtful, 33 per cent of those classed as possible, 42 per cent of those classed as probable, and 60 per cent of those classed as safe. The prediction would have been raised materially if it had been based upon the measurement of a larger number of specific talents. In actual practice now prevailing, where case history and individual auditions are interpreted in relation to talent, the success of the prediction is much higher.

It can readily be seen that selection and rejection on this sort of basis are a great means of economy for the school and for the individual. Indeed, it is a welcome safeguard for the untalented and a heartening encouragement for the talented. Mr. George Eastman said, "The introduction of this system of selection has been a great source of economy for the school and a humanitarian service to those who have been refused admission."

ANALYSIS AND MEASUREMENT OF ACHIEVEMENT

In the psychological laboratory we have developed a system of recording and measurement known as "performance score," which is a medium for analyzing, measuring, and describing the kind and the degree of significant features in musical performance. In the studio, the singer or player performs in front of a microphone; and at the end of the performance we have a permanent record, both by phonograph and by a variety of photographic recordings, of sound waves so that the music can be reconstructed and analyzed from the photograms and compared with the original rendition as recorded in the phonograph record.

It is rather astonishing how much information

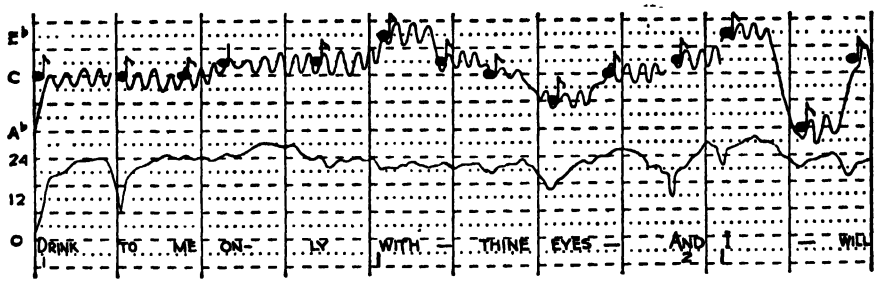


Figure 2 (XVI–102): *Sample Section of Performance Score for Singing, by Arthur Kraft*

This shows exactly how the singer performed in pitch, loudness, and time. Each note is represented by a small diagram in which the upper curve represents pitch in terms of part of a semitone; the lower curve represents loudness in terms of decibels, a measure of the intensity of the tone; and the dots represent time in terms of hundredths of a second. The pitch symbol shows exactly how the note was intoned in pitch and how the pitch varied in the sustained body of the note. The wave in this graph represents a musical ornament, the vibrato, showing the rate, the extent, and the form of the pulsation in pitch. The note from the score is interpolated for identification as to pitch and time value. Similarly, the lower curve shows in terms of decibels (five to the unit space) how the tone rose from silence, how it pulsated in the sustained portion, and how it was released. The time line shows to what extent the singer interpreted this note in relation to metronomic time. The fourth factor, timbre, must be represented in a separate figure, but in terms of these four factors we have a complete picture which in its original large form represents all the details necessary for an exact description of the performance in relation to all musically significant features in even finer detail than is ordinarily heard.

can be condensed in a short performance score. Such a score takes musical criticism beyond the realm of mere personal opinion. This type of score may be adapted for a detailed study of any particular feature, such as comparison of individual features in interpretation. Instruments which can make this type of recording available in the well equipped studios and schools of music are fast coming upon the market.

On the pattern of talent measurement, educational psychologists in music are now developing a variety of measures of achievement under training which will yield significant profiles at successive stages of musical education. The Knuth Achievement Test (1939) is a good example.

NORMS OF MUSICAL PERFORMANCE

What is a beautiful tone? What is a good interpretation? What kinds of tone quality are most beautiful? What degree of artistic deviation from the true is desirable? How may artists be ranked on specific features in their performance? The complexity of such problems and the necessity for allowing a wide range of flexibility in norms is fully recognized.

Take, for example, the use of the musical ornament known as the vibrato (see Figure 2). The performance score reveals the exact character of the vibrato used by an artist. By recording the vibrato we can set up a norm which is expressed quantitatively, showing that the prevailing vibrato among the best vocal artists has a pitch pulsation a trifle over a semitone in extent at an average rate of 5 or 6 pulsations per second and in even sinusoidal form.

Taking the best violinists of today in the same manner, we find that the rate of the vibrato is the same as for voice, but it is only approximately half as wide in pitch extent. Such statistical facts represent norms for actual performance in music. Specific features of each artist can be shown. If, on the other hand, we are interested in improving the prevailing vibrato, we may experiment with different variations and select types which seem to commend themselves. One striking feature is that for the musically competent listener, the vibrato of the voice would be much more acceptable if it were reduced in extent to the same as that prevailing in the violin, that is, about half as wide as at present. This might be called an ideal norm for vocal pitch vibrato.

PRINCIPLES OF LEARNING

It is the business of the psychology of music to collect and evaluate general principles of learning from the vast literature on that subject in educational psychology and to formulate these principles with particular reference to the learning of music. The psychologist of music also carries on learning experi-

ments in the actual musical situation, such as sight reading, ear training, and learning by doing. No student of music can afford to go far in the field without taking account of scientifically established procedures about how best to learn music, and no teacher is prepared to teach or supervise music without a practical knowledge of such psychology of music. Knowledge of principles of learning will vastly shorten the time of learning and make practice pleasurable.

Among the rules which the pupils may apply are the following: Select your field of interest as to instrument and type of music for which you have the greatest liking and aptitude; intend to learn; trust your first impression; learn by thinking; cultivate concrete imagery; build larger and larger units; practice mainly by recall; rest economically; recognize what is learned and express it in action; review in cycles; build each new acquisition into a habit; learn at your own level.

In teacher-education for music, the psychology of motivation, for example, is most fundamental. It involves the art of giving just praise and blame for achievement in learning, of holding a pupil constantly responsible for initiative, of making musical training organized self-help in learning by doing rather than by being told or taught, of making the pupil conscious of mastering one specific feature at a time and knowing when he has achieved it, and of instilling the love of music.

INSTRUMENTAL AIDS

We now have available instruments for the music studio which will aid vastly in the development of musical skills by aiding the ear, the hand, or the voice with the eye. Standing in front of such an instrument, the pupil may see himself sing or play in terms of sound waves. The moment he intones, he sees in fine detail the character of his achievement and can drill effectively for the mastery of one skill at a time.

Take, for example, the ability to sing in pitch and to master art forms of pitch intonation. The moment the pupil sings a tone he sees exactly how much he is sharp or flat, the form of the attack, the artistic deviations from the regular, the degree of steadiness of tone, etc. Viewing one feature at a time, such as the eradication of flatting, he drills on that alone until the visual picture shows that he has acquired true pitch. The instrument is easy to manipulate, and the pupil can drill with it by himself in a practice room until he can report mastery of a specific item.

In the same way, an instrument visualizes loudness and all forms of dynamic music so that one skill after another in dynamic expression may be practiced with precision until it becomes a habit. Likewise, rhythm can be visualized so that he can see with precision how accurately he can sing, for example, a measure consisting of a half note, a quarter note, a dotted eighth, and a sixteenth, and thus eliminate slovenliness, training himself to achieve accuracy as the rhythm is sensed, and build habits of exact metronomic time or any desired form of artistic deviation. Perhaps most important of all, he can visualize the tone spectrum which represents with precision the kind of tone he is producing. He may have a model on the instrument and can practice by the aid of the eye until he is able to approach the tone quality of the model.

Thus he can develop the fundamental skills, training himself to be specifically conscious of each one until it has become a fixed habit. When this is done he can put himself into the artistic mood and allow the mastered habits to come out without effort. Such aids are especially valuable for the discovery and correction of faults of well-established singers.

From these illustrations it is shown that the inceptive psychology of music furnishes us a technical knowledge of the musical medium and the musical mind, the means for the analysis and measurement of musical talent and musical achievement, and practical rules and instrumental aid in learning.

READING REFERENCES

Mursell, James L., *The Psychology of Music.* New York: W. W. Norton & Company, Inc., 1937.

Saetveit, Joseph G.; Don Lewis; and C. E. Seashore, *The Revision of the Seashore Measures of Musical Talents.* Iowa City: The University of Iowa Press, 1940.

Schoen, Max, *The Psychology of Music.* New York: The Ronald Press Company, 1940.

Seashore, C. E., *In Search of Beauty in Music: A Scientific Approach to Musical Esthetics.* The Ronald Press Company, 1947.

———, *Psychology of Music.* New York: McGraw-Hill Book Company, Inc., 1938.

———, *Why We Love Music.* Philadelphia: Oliver Ditson Company, Inc., 1941.

——— (ed), *Studies in the Psychology of Music.* Iowa City: The University of Iowa Press, 1932–1937.

Stanton, Hazel, *Measurement of Musical Talent.* Iowa City: University of Iowa Press, 1935.

103. THE THEATRE

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The theatre and psychology have much in common because of their mutual concern with human behavior. Psychology has contributed richly to dramatic art in general ways, especially in describing and interpreting the behavior and reactions of people. Workers in the theatre have particular interest in certain branches of experimental psychology whose findings are applicable to dramatic production. Notable examples of such work are the experiments in graphic art and music, the numerous investigations of gestures, and the researches of experimental phonetics. It is not the purpose of this section, however, to consider such unintentional, although important, contributions of psychology to the theatre. Rather it is concerned with the fact that comparatively recently certain dramatic artists have turned deliberately to the instruments and methods of psychology for solutions of some of their problems, and that, reciprocally, certain psychologists have become interested in experimenting with definitely dramatic materials and situations. As a result of this trend, this intentional application of scientific method to artistic problems, a new field of *experimental aesthetics of the theatre* is gradually emerging.

This search for facts that well help the actor, director, or artist-technician to improve theatrical performance has been directed, broadly speaking, in one or both of two directions, corresponding to the senses used in the theatre: vision and audition. The basic problems are, of course, visibility and audibility. But, in addition, the experimenters have been interested in the specific stimuli to these two senses that will accomplish such practical functions as furthering the plot, suggesting a locale, establishing a mood, and revealing character. For purposes of discussion it is convenient to divide these into two aspects: first, those that pertain primarily to the individual actor, and, second, those that relate to the performance as a whole.

Along with other work in experimental aesthetics, experimentation with such phenomena has followed in general outline the patterns of psychophysics; that is, it involves (1) a stimulus of known physical characteristics which is studied in relationship to (2) judgments of the stimulus by an observer. Customarily, the actual experimental method has assumed, with certain variations, one of two basic forms: (1) the stimulus is varied by the observer to meet some preinstructed standard, e.g., the intensity of light is adjusted to a preferred brilliance; or (2) judgments are made on fixed stimuli, e.g., the observer judges which of several intensities of light is preferred. It will be noted that these procedures are modifications of familiar psychophysical methods.

Because it is, as yet, hardly possible to report elaborate results, the present section will be restricted to the accomplishment of two aims. First, in order to indicate the opportunities for research in dramatic production, a brief review will be made of certain problems that have been studied. Then, one study will be briefly summarized as an illustration of the experimental procedure outlined above and as an example of the type of results that are obtainable. The investigations mentioned do not comprise all the experimental work in this field; the selection is representative rather than exhaustive.

AREAS OF RESEARCH

STAGE LIGHTING

Illustrative of work in stage lighting are the unpublished experiments of Hunton D. Sellman, largely carried on at the State University of Iowa. This experimenter's interest in solving lighting problems is that of one who is responsible for the illumination of plays in a university theatre. One of the investigations was concerned with the hues and brilliances preferred as background colors for dramatic scenes

of various types. Another approach involved similar measurements, but in relation to the lighting of the individual actor's face and body. The objective of another study was to investigate the recognition of an actor's facial expression as a function of the angle of spotlight illumination. Although this work has been restricted to lighting, it opens up the possibilities of experimental approaches to such other visual aspects of dramatic production as stage composition, posture, and movement.

SOUND EFFECTS

Representative of research in theatrical sound effects are the informal experiments of Burris-Meyer (1940), who has used sound in a number of finished dramatic productions. Through the use of modern electronic control he has found it possible to heighten the illusion of realism in many ways: by controlling the apparent distance and direction of the sound source, for example, as in a play requiring the noise of a circling airplane, or by supplying reverberation suitable to the locale, as in a dungeon scene. Quality distortion was employed a number of times, as when the ghost of Hamlet's father was caused to speak with an electronically modified voice that presumably suggested his sepulchral origin. That controlled sound may serve as an independent dramatic stimulus, particularly in expressionistic productions, was demonstrated in other plays. In one instance a warble-tone, gradually raised in frequency and intensity, was used throughout a certain scene as a device to increase the agitation of the audience. Especially interesting is the report that in another play it was found possible to exert arbitrary control over the posture of observers (the audience) simply by raising or lowering the intensity level of the background music. In the instances cited quantitative data on audience reactions have not been reported, but such phenomena are clearly amenable to measurement and should be of rich interest to both psychologists and dramatic artists.

THE ACTOR'S VOICE

The author and his colleagues have been experimenting objectively with the voices of actors for a number of years. As a part of this work investigation has been made of such problems as the vocal expression of emotion, the pitch and duration changes during rehearsal, the vocal characteristics of professional actors and actresses, the nature of emphasis in acting, the preferred rates of speech, the preferred pitch levels, and the characteristics of pitch variability. In most of these studies the methodology of experimental aesthetics was employed; that is, the physical attributes of the voice were measured and judgments were made by observers. In a few of the studies, such as that of the professional actors, aesthetic preference was inferred, rather than demonstrated experimentally.

A TYPICAL EXPERIMENT

One investigation that typifies the principles of experimental procedure in this field is of especial interest both to dramatic artists and to psychologists. This experiment (Fairbanks and Pronovost, 1939; Fairbanks and Hoaglin, 1941) attempted to supply an answer in part to the following general question: What vocal attributes characterize recognizable simulations of emotions by actors? Specifically, what are the pitch and duration characteristics of the voice during the portrayal of certain emotional states?

Of obvious importance in a study of "recognizable" emotional expression is control of the verbal context, so that audience recognition is not based upon the meaning of the words spoken. At the same time, it is desirable to study connected speech rather than spoken nonsense syllables, letters of the alphabet, or some other type of material without specific verbal meaning. For these reasons a short passage was written which could take on various meanings according to the manner of vocal interpretation. After many attempts the following was judged to be acceptable:

> There is no other answer. You've asked me that question a thousand times, and my reply has always been the same. It always will be the same.

Six versatile amateur male actors served as subjects. After one week of practice each actor repeated the passage five times, expressing in turn *contempt, anger, fear, grief,* and *indifference,* the emotions selected for study. High quality phonograph recordings of the readings were made.

JUDGMENTS OF OBSERVERS

Following the type of experimental design described above, a major feature of the procedure was to determine the reactions of observers to the simulations. In this particular experiment a problem of primary interest was the readiness with which observers could identify the intended emotions. It was considered that solution of this problem would supply

answers to two crucial questions: (1) Are the recorded simulations typical examples of the intended emotions? (2) What differences in typicality exist among the simulations by the six individual actors? Answers to these questions are clearly essential to an evaluation of the results of physical analysis, in addition to being of considerable interest in themselves.

The following technique of observer identification was employed. The recordings were played in random order before a group of 64 young adults. The members of this group were provided with a list of 12 emotional states: *amusement, anger, astonishment, contempt, doubt, elation, embarrassment, fear, grief, indifference, jealousy, love.* As each recording was played the observers, individually, selected from this list the term which named the simulated emotion most accurately. They were not told which of the 12 emotional states were being simulated, and were prevented from deducing this by the introduction of ambiguous simulations throughout the random order. By means of this procedure it was possible to determine the relative effectiveness of the simulations as indicated by the percentage of correct identifications. Thus, for example, a portrayal of anger that was identified correctly by 95 per cent of the observers was considered to be a more typical portrayal of anger than one recognized by only 55 per cent.

IDENTIFICATION

The top row of the table below presents the percentages of correct identifications of the simulated emotions by the sixty-four subjects. Since these percentages are uniformly high it is apparent that the recorded simulations as a group were satisfactory examples of the five emotions in question. Individually the portrayals ranged from 98 to 33 per cent, but only two were identified by fewer than 50 per cent of the observers. It should be noted that these identification percentages are somewhat higher than those usually found in studies of the recognition of emotions from facial expression. This suggests that the voice may be a stronger symbolic tool for emotional expression than the face, since the present technique of identification was probably of greater difficulty than those employed in the work on facial expression. It also will be observed that the five emotions varied in identifiability, which suggests that certain states are more readily simulated and/or identified than others. This experiment, however, was not arranged to settle the latter problem.

MEASURING AND GRAPHING THE VOICE

Pitch and duration characteristics of the voice were measured by means of a special camera for photographing sound waves from phonograph recordings. Data derived from the measurements were plotted on graphs known as pitch curves in which the vertical axis is the equal-tempered musical scale and the abscissa is marked off in intervals of one second. Figure 1 presents for each of the five simulated emotions the pitch curve of the portrayal which was identified by the largest percentage of observers; in no case was this less than 94 per cent.

Comparison of the five curves in the figure reveals certain typical differences between the simulated emotions, one of the most striking of which

Pitch and Duration Measurements of the Simulated Emotions

Identification Measurement	Contempt	Anger	Fear	Grief	Indifference
Per Cent of Correct Identification	84%	78%	66%	78%	88%
Pitch Measurement					
Median pitch level (c.p.s.)	124	229	254	136	108
Mean pitch range (tones)	10.5	10.3	11.2	9.0	7.8
Mean extent of inflections (tones)	2.2	2.6	2.3	1.7	2.0
Mean extent of shifts (tones)	2.3	2.3	2.7	2.0	1.6
Mean rate of pitch change (tones/sec.)	16.8	25.6	19.0	15.6	16.6
Duration Measurement					
Mean rate (words per minute)	116	190	202	129	209
Mean duration of phonations (sec.)	0.59	0.40	0.38	0.40	0.38
Mean duration of pauses (sec.):					
Within phrases	0.16	0.10	0.09	0.19	0.09
Between phrases	0.97	0.64	0.60	1.31	0.62
Mean percentage of total duration:					
Phonation	67	69	69	53	71
Pause	33	31	31	47	29

is in the rate of speech. The simulation of contempt is approximately 14 seconds in duration while that of fear is about 6 seconds. Contempt and grief exhibit longer pauses than the other three emotions. The pitch curve of contempt is comparatively smooth and shows gradual changes, except for the wide downward inflections on the words *answer, times,* and *same*. Comparatively wide and abrupt inflections are present in the curve for anger, and wide upward inflections are more numerous than in the other curves. The fear curve resembles the anger curve in abruptness of inflections, although they are not as wide. The grief curve shows long, sustained, slowly falling pitch movement during each phrase, and is especially notable for the consistent presence of vibrato. The graph for indifference has no distinctive features and resembles closely the curves of factual speech.

The curves of the figure show remarkable differences in pitch level between the five simulated emotions. Anger and fear are close to middle C, designated as C_4. This is the level usually employed by adult females in factual speech, although the actors in this experiment were all males. Contempt, grief, and indifference are in the neighborhood of C_3, one octave lower, a level typical of male speech.

PITCH AND DURATION CHARACTERISTICS

The results of the pitch and duration measurements taken from the curves of the five emotional portrayals by the six actors are presented in the table. The terms used are defined as follows: *Cycles per second* (c.p.s.) designates frequency; a *tone* is the full step of musical parlance, a frequency difference of approximately 12 per cent; *pitch level* is the average frequency used in a given sample of speech; *pitch range* is the difference between the highest and lowest pitches used; *inflection* is a continuous upward or downward pitch movement; a *shift of pitch* is the change which takes place between the last pitch preceding and the first pitch following a pause; *rate of pitch change* is measured by dividing the extent of an inflection by its duration, thus describing the abruptness of an inflection, and should not be confused with *rate* in words per minute; a *phonation* is an uninterrupted vocal sound.

A number of the characteristics of the emotional simulations are revealed in this table, and it seems reasonable to conclude that these features play an important role in the identification of the emotions by observers. However, they are not the only identification clues. It is almost certain that intensity and voice quality, as well as other aspects of pitch and duration, also have symbolic value. Inspection of the data in the table reveals that each emotion has certain unique features that distinguish it from the others. *Contempt* is notable for its extremely slow rate of 116 words per minute, the average for oral reading of factual prose being approximately 165 words per minute. It also exhibits phonations of long duration. It is the only one of the five emotions in which a wide pitch range was used at a normal male pitch level. The average simulation of *anger* employed a high pitch level, wide inflections, an extremely rapid rate of pitch change, and rapid rate in words per minute (see Figure 1). The highest pitch level, widest pitch range, and the widest shifts of pitch were found in *fear,* and the mean rate also was very rapid. The distinguishing characteristics of *grief* are observed to be narrow inflections, very slow rate of pitch change, slow rate in words per minute, and long pauses between phrases. This emotion is especially interesting with regard to the last item in the table, which expresses the proportionate division of the total speaking time into sound and silence. In grief these mean percentages are 53 and 47 respectively. In the other emotions, and in oral reading of factual material, the proportions are approximately 70 to 30. In fact, the pause time actually exceeded the phonation time in three of the six individual simulations of grief. The vocal symbols of *indifference,* as can be seen in the table, apparently are low pitch level, narrow pitch range, narrow shifts of pitch, and rapid rate in words per minute.

EFFECTIVE VERSUS INEFFECTIVE SIMULATIONS

An indication of the importance of the distinguishing characteristics pointed out above is provided by a consideration of two simulations of fear that were identified correctly by only 37 and 33 per cent of the observers. The first was judged to be a simulation of astonishment by 19 per cent, jealousy by 14 per cent, and the balance of the judgments were well distributed throughout the list of 12 emotions, although correct identifications were most frequent. It was not surprising, therefore, to find that the pitch curve and the measurements reflected a similar lack of definiteness. The other portrayal, recognized as fear by 33 per cent of the audience, was misidentified as grief by 64 per cent. Although it had some of the features of fear, e.g., a high pitch level, certain typical characteristics of grief, such

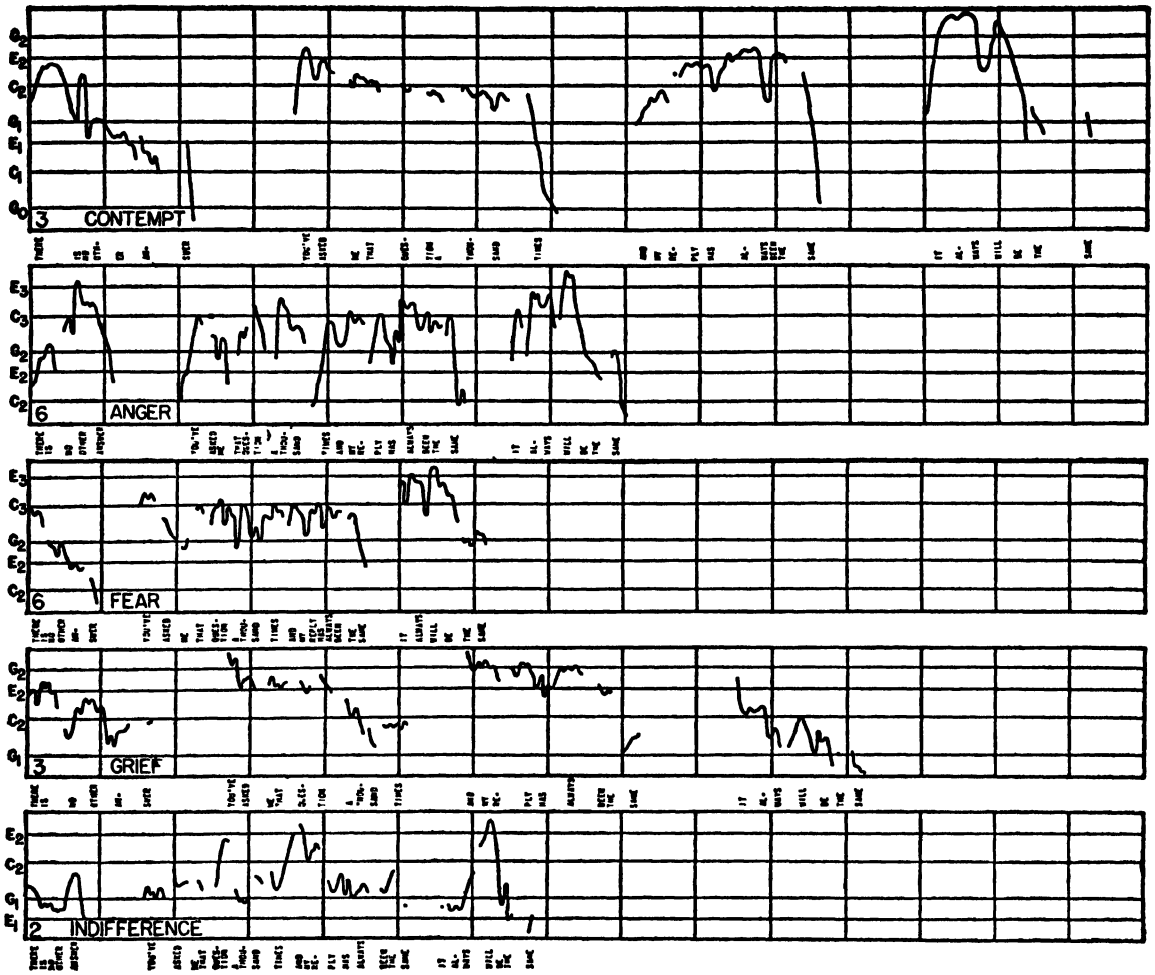


Figure 1 (XVI–103): *Pitch Curves of the Five Simulated Emotions.*

as a slow rate and consistent vibrato, were more prominent.

SUMMARY

This experiment revealed that actors can produce vocal simulations of emotions that may be identified by observers with high reliability even when all nonvocal clues are excluded. Acoustical measurements disclosed that such simulations of several emotions exhibit certain marked and consistent vocal differences, at least in pitch and duration. It was concluded, therefore, that an actor employs what may be called distinctive vocal symbols for the various emotions, and that some of these symbols had been described quantitatively by the experiment.

FUTURE DEVELOPMENT

This study of the voices of actors during emotional expression has been reviewed in detail in order to illustrate a typical experimental approach to a dramatic problem. Together with other investigations, such as have been described above, it demonstrates that an experimental aesthetics of the theatre, developing naturally out of the common interests of dramatic art and psychology, is both feasible and fruitful.

READING REFERENCES

Burris-Meyer, H., "Sound in the Theater." *Journal of the Acoustical Society of America,* 1940, 11, 346–351.

Cowan, M., "Pitch and Intensity Characteristics of Stage

Speech." *Archives of Speech,* 1936, **1,** Supplement, 1–92.

Dunlap, K., "The Role of Eye-Muscles and Mouth-Muscles in the Expression of the Emotions." *Genetic Psychology Monographs,* 1927, **2,** 196–233.

Dusenburg, D., and F. H. Knower, "Experimental Studies of the Symbolism of Action and Voice." *Quarterly Journal of Speech,* 1938, **24,** 424–435; 1939, **25,** 67–75.

Fairbanks, G., "Recent Experimental Investigations of Vocal Pitch in Speech." *Journal of the Acoustical Society of America,* 1940, **11,** 457–466.

———, and L. W. Hoaglin, "An Experimental Study of the Durational Characteristics of the Voice during the Expression of Emotion." *Speech Monographs,* 1941, **8,** 85–90.

———, and W. Pronovost, "An Experimental Study of the Pitch Characteristics of the Voice during the Expression of Emotions." *Speech Monographs,* 1939, **6,** 87–194.

LaPiere, R. T., and P. R. Farnsworth, *Social Psychology* (2nd ed.). New York: McGraw-Hill Book Company, Inc., 1942, Chap. 5.

104. SPEAKERS AND AUDIENCES

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Nearly everyone speaks to audiences almost every day. The audience may be a single individual, a small group, or a large crowd; the situation may be informal, as in ordinary conversation, or more highly structured, as in business conferences, training talks, club meetings, or political rallies. For many, such as teachers, lawyers, clergymen, and salesmen, ability to speak effectively is an essential skill. In most occupations this ability is important. The businessman speaks to his associates or to his customers, the physician counsels a patient or a family group, the engineer explains or advocates a new project, the member of any organized group may speak during a business meeting. Most speaking is done before relatively small audiences. Talking to others for the purpose of influencing their behavior involves similar fundamental problems, however, whether the audience is an individual or a group.

ANALYSIS OF THE SPEAKER'S PROBLEM

BASIC PROBLEMS

The practical significance of audience psychology can be illustrated by certain basic questions it attempts to answer. How can stage fright be overcome? How much influence does a talk have on an audience, compared, for instance, with a message in writing? What abilities or personality traits are responsible for effective speaking? How does the effective speaker keep his audience highly attentive? What techniques are most useful in helping listeners remember what they are told in an informative talk? What techniques are most useful in persuading an audience to agree with the speaker? Does speaking ability improve with training? Research has been directed at the answers to these and many more specific questions.

METHODS OF INVESTIGATION

As recently as 1916, Woolbert wrote that some day audiences would be studied experimentally, for psychologists were busy then devising the necessary techniques. Only ten years before, Scott's book on the psychology of public speaking was the first published work under that title. In the ensuing years, many investigations of audience behavior have been made with the aid of such measuring instruments as objective examinations, attitude scales, personality tests, and rating scales, and the experimental method of studying audiences is now well established.

Nonexperimental methods have been of great importance in our understanding of basic principles of public speaking, as demonstrated by the high regard held for the writings of Aristotle and Quintilian on the principles of composing and delivering speeches. In general recent experimental study has

not contradicted views previously held, but has served to verify, extend, and refine our knowledge.

RESULTS OF RESEARCH IN AUDIENCE PSYCHOLOGY

INFLUENCE OF A SPEECH ON MEMORY

Many a speaker has wondered how much of his carefully prepared talk his audience would remember. Jones (1923) measured the recall by college students of facts given in a part of a lecture and in entire lectures as delivered from outlines. A speaker chosen as the best lecturer of his acquaintance gave a series of lectures on which his audiences were tested for recall. Jones' results are startling. For the ordinary speaker, 40 per cent of the material was forgotten at the end of the lecture, 50 per cent by the end of the first day, another 5 per cent after 3 or 4 days and by the end of 8 weeks about 75 per cent had been forgotten. Even in the case of the superior lecturer, only 70 per cent was remembered immediately after the lecture. The importance of techniques for making informative talks more effective scarcely requires comment.

INFLUENCE OF SPEECH ON ATTITUDES

Experimental studies of persuasion have been made for the purpose of learning whether one or more brief talks would change audience opinions. Chen (1933) found that a brief vigorous talk produced large favorable shifts. Gardner (1935) found that a series of three talks had a cumulative effect on audience attitudes in the intended direction. There is evidence that these changed attitudes persist over fairly long periods.

DIRECT SPEECH VS. RADIO SPEECH AND PRINTED PAGE

If, then, an audience remembers something from a lecture, we may well inquire how efficient a speech is when compared with other methods of presenting information. Corey (1934) found that there was no difference, after an interval of 2 weeks, in recall of material read and material heard in a lecture, although when tested immediately recall was better from reading. Gaskill (1933) compared recall of lecture material heard over the radio with recall of the same material heard directly in the studio. He found that those who listened to the radio made somewhat better scores. A series of experiments by Cantril and Allport (1935) compared face-to-face and radio presentation for their effect on immediate memory and comprehension of difficult material. Little difference was found, suggesting that informative talks by radio are about as effective as those delivered directly before the audience. A more recent study (Heron and Ziebarth, 1946) confirms this result. Objective examinations showed no significant difference between half the members of a college class who heard regular psychology lectures in the classroom and the other half who listened to the same lectures over the radio. The same result was obtained during the second half of the course when the procedure was reversed for the two groups.

It might be asked now which of these three methods of presentation—lecture, reading or radio—is most effective in changing attitudes through persuasive speech. When audiences listened directly to a speaker, or heard the same talks over loudspeakers, or read stenographic copies of the talks, Wilke (1934) found the direct lecturer most effective, and next the speech heard over the loudspeaker, with the reading of copy least effective in persuasiveness. This is probably because in appeal to feeling the gestures and voice of a speaker are important additional cues, although the understanding and retention of informative talks is about the same for these three media of communication.

SPEAKING ABILITY: ITS MEASUREMENT AND IMPROVEMENT

METHODS OF MEASUREMENT

Two methods have been employed to measure the effect of a speech. The first measures the *product or effectiveness of the speech,* as indicated above, either in amount of information retained or the extent of change in attitudes. The second measures the audience's *evaluation of the speech* by rating scales. Rating scales with numerous items can be used to give an audience evaluation of the various aspects of delivery and content. Both methods of product measurement and audience evaluation give rather similar results as was indicated by Monroe (1937) who reported a substantial correlation between attitude scores and audience ratings.

A careful study of several methods of rating speeches (Thompson, 1944) indicated that using a linear scale or assigning letter grades gave equally accurate results, that ratings obtained on a Thurstone-type attitude scale were equivalent to ratings on a diagnostic scale based on Monroe's factor analysis (see below), that paired comparisons of a small group of speakers were more reliable than assigning them a rank order, and, in general, that the

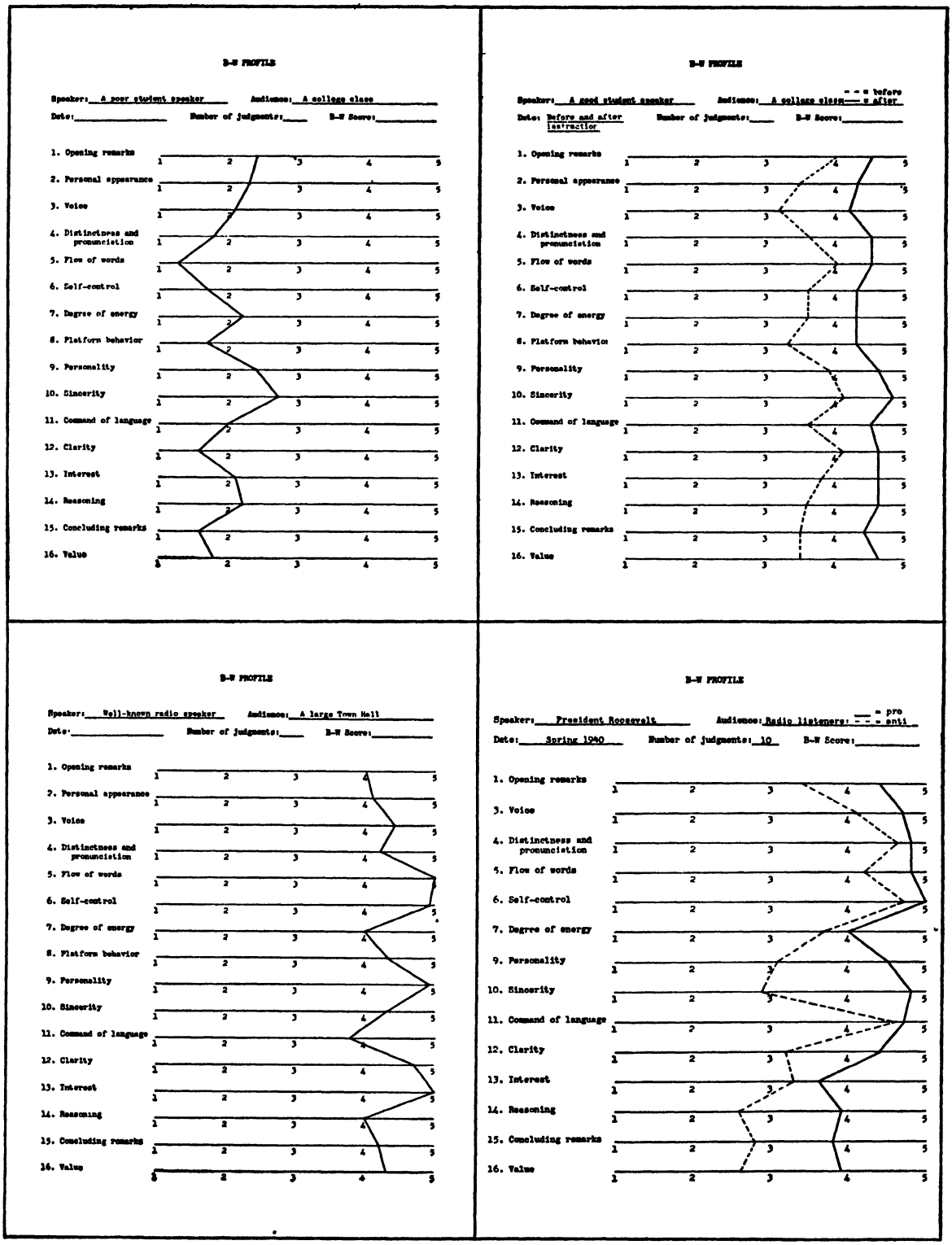


Figure 1 (XVI–104): *B–W Profiles of Different Speakers Based on Ratings by the Audiences.*

advantages in accuracy favor the simpler devices. Also of practical importance is the finding that members of an audience differ considerably in ability to rate a speaker and that some speakers are much harder to rate reliably than are others.

The B-W (Bryan-Wilke) Profiles shown in Figure 1 are based on ratings by the audiences. Members of an audience rated the speaker's voice as *pleasing, average,* or *limited,* the interest value of the speech as *stimulating, passable,* or *dull,* and so on, and the average of the ratings was used to construct these profiles. This method of measuring the effectiveness of speeches has been found both reliable and valid.

CHARACTERISTICS OF EFFECTIVE SPEAKERS

Standard intelligence and personality tests have been given to good and poor speakers (Gilkinson and Knower, 1939; Hayworth and others, 1939; Bryan and Wilke, 1941; Dow, 1941; Dow and Papp, 1943) to find out what basic human qualities are associated with effective speaking. But surprisingly little relation was found between speaking ability and test scores for emotional adjustment, general intelligence, vocabulary, comprehension in reading, vocational interest, or social and political attitudes. Likewise, writing ability is quite different from speaking ability, the best index of both showing a correlation of only 0.19 (Mills, 1947). Three studies have shown, however, that the individual's speech history is highly significant in predicting degree of speaking ability (Gilkinson and Knower, 1939; Hayworth, 1939; Chenoweth, 1940). The good speakers were those who scored high on social adjustment, had favorable attitudes toward speech situations, had extensive experience in speaking, came from families with active speech habits and leadership, and had taken courses in public speaking. Skill in speaking evidently is a pattern of specific habits rather than a quality closely associated with a general personality trait. A similar conclusion is drawn from a study of conversational ability (McDonald, 1945).

Certain easily observed aspects of delivery, such as fluency, meaningful gestures, meaningful facial expressions, meaningless gestures, and breaks in eye contact, were recorded in Hayworth's experiment (1939) and the results compared with audience ratings for general effectiveness. A direct relation was found between these specific habits and the audience rating of the speech as a whole, further indicating that speaking involves a pattern of special skills.

Both Monroe (1937) and Hayworth (1939) attempted to learn whether details of delivery and specific qualities of the speech affect the listener as independent elements or if he responds to the more general characteristics of the speech. Both experimenters found evidence that the audience reacted to a limited number of general aspects and by factor analysis of the ratings of a thousand male student auditors to 375 speeches, Monroe identified five major factors: (1) clarity and adequacy of the subject matter or proof, (2) physical and vocal animation, enthusiasm, and force, (3) personal adjustment to the audience, (4) clarity of presentation, i.e., distinct utterance and clear wording, and (5) appearance of physical ease and poise. These factors appear to be the principal variables distinguishing the best and poorest speakers whom they had ever heard, as described by 235 college students, in the later study by Henrikson (1944). This analysis, then, appears to describe the nature of speaking skill as judged by audiences.

METHODS OF IMPROVING SPEAKING

Improvement in speaking ability, as measured by audience ratings of initial and final speeches, usually results from instruction. Most of the specific elements of delivery studied by Hayworth and his collaborators (1939) showed definite improvement, e.g., fluency increased, and breaks in eye contact decreased. Such factors as home adjustment, emotional adjustment, general intelligence, and knowledge of English usage were found to have little relation to improvement. Differences in teaching techniques, however, appear to be important. Greatest improvement was shown by speakers in groups when the instructor did little lecturing, when the use of notes by the speakers was discouraged, and when many short speeches were made rather than fewer long ones. An interesting finding is that student speakers are poor judges of their own improvement. Important, also, in view of the increasing popularity of group speaking situations, such as panel discussions, symposiums, and lecture-forums, is Ewing's study (1944) showing that speaking ability is developed about as well by group speaking practice as by the conventional training in making individual speeches.

SPECIAL PROBLEMS

STAGE FRIGHT

Most persons have felt emotionally upset in anticipation of speaking to an audience. It is common obser-

vation that stage fright affects some persons more than others, and that it varies to a considerable degree with different audience situations. It is not limited to speaking but may occur whenever an individual feels conspicuous before a new, important, or large group.

The cause of stage fright has not been clearly disclosed. Perhaps genetic studies of its development in the individual speaker will some day throw more light on its origin. The most thorough study of this question (Gilkinson, 1943) indicated that in a group of more than four hundred students of both sexes the more fearful speakers (1) had less formal training and experience in speech activities (2) showed more anxieties toward their social relationships and a tendency toward generalized low self-evaluation. The investigator believes that a generalized sense of inferiority frequently operates as a primary cause of the speaker's emotional disturbance when facing an audience. Whatever the cause, it seems clear from experimental investigation (Hayworth, 1939) that stage fright exerts an inhibiting effect on the development of speaking ability. Speakers who described their reactions as "quite nervous and uncomfortable" or "somewhat nervous and uneasy" made far less progress than those who said they felt "eager and confident." The practical solution of the problem does not seem especially difficult, however, since a random sample of one hundred speakers showed steady and marked diminution of stage fright in a 12-week period of instruction which was sufficient to change their self-ratings from an indication of nervousness and uneasiness to claims of self-confidence. Stage fright diminished at least as rapidly when ignored as when made the object of special instruction. Frequent short speeches are more effective in reducing it than fewer long ones.

HOLDING ATTENTION

The basic external conditions which facilitate attention include the size, intensity, and duration of the stimulus and the factors of novelty and change. These conditions are important in the techniques recognized as useful in catching the attention of an audience. But certain audience conditions are even more important in *maintaining* attention, and these include long-standing habits of paying attention to a speaker in certain situations, the attitude of the audience toward a particular occasion and speaker, and basic emotional attitudes or motives aroused by the speaker or associated with the subject matter of the speech.

An early study by Moore (1919) concerned the attention value of lecturing with and without notes. He found that the audience which heard the speech delivered without notes remembered a great deal more of the material than the audience to which he read the material while bent over his notes. Jersild (1928) memorized a brief talk, delivered it before ten audiences making changes with each repetition and tested the audience immediately after the speech to see which statements they remembered. The recall scores which follow indicate the relative effectiveness of various techniques studied.

Technique Used	*Recall Score*
5 repetitions, distributed throughout the talk	315
4 repetitions, distributed throughout the talk	246
3 repetitions, distributed throughout the talk	197
Verbal emphasis—"Now get this"	191
Primacy: first statement of the 70	175
Recency: last statement	128
Loudness: voice raised above customary level	126
Recency: average of two statements just before last	121
Gesture: arm raised while statement was made	118
2 undistributed repetitions early in talk	116
Banging fist on table during last word of statement	115
Ordinary run of statements, unemphasized	100
Slowness of speech: half of normal rate	79

It is clear that some of these devices for added emphasis materially improve the audience's memory of the facts presented in the speech. Jersild's experiment was repeated (Ehrensberger, 1945) with much improved experimental and statistical techniques, using 21 matched audiences, 10 different speakers, and a multiple-choice test of retention. Again, most of the devices (9 out of 11) were effective, with "Now get this," immediate repetition late in the talk, and 3 distributed repetitions heading the list. Contrary to Jersild's results, a slow rate was found fairly effective but a loud voice produced a negative effect.

Additional information regarding attention-holding techniques comes from other experiments. Several experiments on the usefulness of visual aids—motion pictures, photographs, charts, tables, models—were summarized by Hollingworth (1935) who concludes that, while the effectiveness of such devices varies depending on the particular audience, visual aids often are helpful in improving retention of the speech. Jones (1923) found that a brief quiz at the end of the lecture greatly increased retention of the

lecture material. Considerable variation of the voice in loudness, pitch, and quality has been found to improve recollection of the speech material.

Many writers have pointed out that the more abstract and symbolic the material the more difficult it is to comprehend, whereas actual objects, pictures of objects, graphs suggesting an analogy in size with the objects represented, and words which are specific rather than general have, in decreasing order, an advantage in catching attention and maintaining interest. The principle that the concrete is more interesting than the abstract probably accounts for the effectiveness of visual aids over oral presentation alone.

AVOIDING ANNOYANCES

More than five hundred persons who represented a wide age range, came from almost all sections of the United States, and who fairly often listened to speeches were given an opportunity by Toussaint (1937) to indicate how annoying they regarded one hundred twenty characteristics of public speakers. Items concerned with the speaker's attitude and personality were found the most annoying. Less annoying in decreasing order were items concerned with the speaker's voice, language, thought, and action. A few samples from the two extremes of the list illustrate the findings. Regarded as particularly annoying were such descriptions as "mumbles his words," "is unprepared," "continually inserts 'er,' 'ah,' 'uh,'" "mispronounces common words," "talks in a monotone," "lacks enthusiasm," and "antagonistic attitude." In contrast with these, the items least annoying included "plays with his watch chain," "frequently thrusts hands in pockets," "stands in one place during speech," and "excuses himself after coughing." Evidently audiences find least objectionable violation of the superficial conventions of platform behavior.

The use of an unpopular regional dialect has been disclosed as a frequent source of annoyance by a nation-wide survey (Snyder and Wilke, 1941). New York local speech, for example, was disliked to the same degree as marked foreign accent, by both New York City residents and persons in all sections of the United States.

CONVINCING OR PERSUADING THE AUDIENCE

Possibly of even greater importance than the informative lecture is the talk designed to change the opinion of the listeners. Hundreds of experimental studies have been concerned with the origin, development, and change of attitudes and their distribution among various groups (potential audiences) differing in age, sex, political or religious affiliation, economic status, etc.

BASIC PRINCIPLES. One who examines this voluminous research for its bearing on audience psychology finds that basic principles understood long before modern experimentation have been verified rather than contradicted. The fundamental technique for the speaker who would secure agreement by his audience is to arouse motives (drives, related emotional attitudes) which will sufficiently reenforce the speaker's proposition to secure acceptance of his point of view. A corollary is to avoid arousing antagonism, whether toward himself or toward his subject matter.

METHOD OF EXPERIMENTAL STUDY. The study of attitudes and changes in attitude is more fully discussed in Section 2 of this book. An attitude scale permits the person tested to indicate his opinions on the subject under investigation. With such an instrument attitudes can be measured before and after an audience hears a speech, and the effect of the speech determined.

SPECIFIC EXPERIMENTAL CONTRIBUTIONS. The power of emotional appeal as against appeal to logic has been understood for centuries. Attitude measures show that even with college students emotional appeal is as effective as rational appeal (Chen, 1935; Knower, 1936), and emotional appeal was found more effective in a political campaign by Meier (1925) and by Hartmann (1936).

Prestige is well known to exert an influence on opinions. Two kinds of prestige suggestion, expert opinion and majority opinion, which are readily applicable to audience psychology, have been investigated, and both proved effective in producing changes of attitude. Strength of majority and strength of expert opinion were approximately equal, but vary somewhat with the topic under discussion.

Arranging the main ideas of a speech in an order of climax has been the traditional practice. Doubts about the universal applicability of this principle arose from the study of climax and anticlimax order in presenting advertisements of different size (Adams, 1920), the results showing better retention for anticlimax order—large advertisement first. These doubts were strengthened by a demonstration that with printed arguments the first argument presented, whether positive or negative had a greater effect on shift of opinion (Lund, 1925). A

similar result was reported by Knower (1935). An ingenious and well-controlled experiment provides a direct test of climax order in a persuasive talk (Sponberg, 1946). Delivery was held constant by recording the speech, but the three arguments were presented from the same recording in order of increasing importance to one group and the reverse order to another by manipulating the phonograph pickup. The anticlimax order resulted in significantly better retention of facts as well as greater shift of opinion immediately after the speech and also from 10 to 13 days later.

Humor has long been considered highly effective in persuasive speeches, but doubt is thrown on this rule of thumb by Lull (1940) who found that nonhumorous speeches were just as persuasive as humorous ones. Hartmann's study (1936) of reactions to political party names and party platforms points out that emotional attitudes are often quite specific and that the ideas of a party platform may be approved although an unfavorable attitude toward the party's name has been built up. Such specificity accounts in part for the value of slogans and epithets over detailed explanations; the speaker may gain approval for an easily remembered, emotionally-toned catch-phrase, despite logically contradictory attitudes of the audience toward related questions. Use of the most concrete symbols available is desirable in persuasive speeches. Lantern slides were found, for example, to aid appreciably in changing attitudes (Campbell and Stover, 1933). Not yet subjected to experimental study but generally conceded of major importance in persuasion is an attitude of sincerity. Whether or not the audience is correct in its judgment, belief that a speaker is deeply sincere facilitates persuasion whereas suspicion of insincerity exerts a powerful inhibiting effect.

Persuasiveness depends, of course, upon many audience factors. Experiments have repeatedly shown that females are more easily persuaded to change their opinion than males (Bowden, 1934; Wegrocki, 1934; Knower, 1935, 1936). Younger audiences have been found more open to suggestion than older groups. Individuals have been found more influenced by oral argument than groups (Knower, 1935). Attitudes are known to be related to the individual's political and religious affiliations, locality, and economic status. But the relation of these factors to susceptibility to *change* of opinion in response to speeches has not been sufficiently investigated. Susceptibility to change of opinion does not seem closely related to intelligence. In group discussion, large shifts of opinion are associated with lack of information (Robinson, 1941).

COMPLEX SPEECH SITUATIONS: ROUND-TABLE, PANEL DISCUSSION, FORUM, GROUP DISCUSSION

The devices for permitting more than one speaker to address an audience or for permitting the audience itself to participate in the discussion are becoming increasingly popular.

The increased attention value provided by several speakers instead of one, as in the round-table and panel discussion, is readily explainable in terms of stimulus change, novelty arising from unexpected developments in the discussion and the added motivational factors aroused by vigorous differences of opinion. Group discussion, as a basic method of democratic institutions, warrants thorough investigation. That group discussion modifies social attitudes was shown in Robinson's study of forty-three discussion groups. Moreover, 93 per cent of the participants gained information and approximately three fourths of the groups reached a consensus on solutions of the problems discussed. Group discussion resulted in choice of better solutions, as judged by experts, on the part of both high school girls and boys, and the improvement was still evident a month later (Timmins, 1941). That group discussion may not be advantageous in all situations is illustrated by a study of methods of preparing persuasive talks (O'Brien, 1940). Individual reflection seemed superior to discussion in the quality of the arguments, clarity of organization, word output, and general effectiveness of the compositions.

CREATING A FAVORABLE ATMOSPHERE

Griffith (1921) learned that students in the center of a class received better grades than those at the edges. He felt that the audience was more unified or "polarized" and less individualistic in the center, where each individual is aware that others around him are attending to the speaker. Arnspiger (1933) showed that sound-film talking-picture lectures were more effective than direct speeches, a finding which suggests the probable importance of variations in lighting on audience reaction.

These studies suggest that experimentation on the influence of such factors as the type of auditorium, the height of the speaker's platform, the ventilation and lighting, the use of ritual, and the effect of speeches of introduction are needed before the full significance of the physical and psychological setting of the speech can be accurately appraised.

SUMMARY

Research in audience psychology has contributed numerous facts concerning the techniques of effective speaking and the results of speeches on audience behavior, which may be summarized briefly as follows:

1. Dependable methods have been devised for measuring the effect of a talk on an audience.
2. The average person shows marked improvement in speaking ability as a result of instruction and practice.
3. Audiences are more affected by their impression of a speaker's clarity and convincingness, forcefulness, attitude toward his listeners, and fluency and distinctness of speech than they are by relatively superficial conventions of platform behavior.
4. Stage fright usually diminishes to a point where it is negligible as a result of regular practice in speaking to groups.
5. Numerous devices have been found effective in improving audience retention of lecture material.
6. The traditional methods of persuading an audience to agree with the speaker have, for the most part, been validated by research, and the importance of emotional appeal has been reemphasized.
7. Current research probably will extend our knowledge of the outcome of the newer forms of speech situations, such as the open forum, panel, round-table, and group discussion.
8. Although audience reaction to various aspects of the physical and psychological setting of a speech needs further study, it appears that such factors as seating arrangement and lighting are of genuine importance.

READING REFERENCES

Eisenson, J., *The Psychology of Speech*. New York: Appleton-Century-Crofts, Inc., 1938.

Gilkinson, H., and F. H. Knower, *Psychological Studies of Individual Differences among Students of Speech*. Minneapolis: privately published, 1939.

Hayworth, D.; A. Rondileau; R. A. Miller; et al., *A Research into the Teaching of Public Speaking*. Detroit: National Association of Teachers of Speech, 1939.

Hollingworth, H. L., *The Psychology of the Audience*. New York: American Book Company, 1935.

Monroe, A. H., *The Measurement and Analysis of Audience Reaction to Student Speakers—Studies in Attitude Changes*. Lafayette: Division of Educational Reference, Purdue University, 1937.

CHAPTER XVII

ADMINISTRATION OF PSYCHOLOGICAL SERVICES

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106. Administration of Psychological Services in Public Schools	Bertha M. Luckey
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105. CONSULTING PSYCHOLOGY IN BUSINESS AND INDUSTRY

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Discussions of the relation of psychology to business and industry are subject to the common fallacy of abstraction. The realities are psychologists, executives, and employees in business organizations. The administration of work done by psychologists varies, in consequence, according to the nature of relationships established with different organizations and the services to be rendered. In many instances psychologists are permanent employees, as are accountants, engineers, or other specialists. Their activities are then subject, in part at least, to the administration of the company with which they are connected. More commonly, they are retained as professional consultants over a period of time, or they are engaged to conduct research or to perform certain services under the terms of an agreement. In any case, the first considerations are the qualifications of the psychologist and the definition of the services expected.

SELLING PSYCHOLOGICAL SERVICES

As in any business, there is always need in consulting work for proper promotion of the services and products offered. The public is aware of the general usefulness of psychology, but the specific nature of many services and particularly of the time and cost required for their performance often need clarification. Furthermore, the great variety of problems to which psychological methods of research may be applied affords a wide field for enterprise on the part of competent psychologists. In fact, psychology was once defined by one of its foremost leaders, J. McKeen Cattell, as "whatever psychologists choose to work at." Although this definition is vague, it implies that the psychologist's own competence and training and his skill and experience in a particular field are the principal things he has to sell. During the recent World War, the services of psychologists were increasingly in demand. In the early stages, however, it was often necessary for the psychologists to *sell* the idea of applying their techniques and methods of research to many sorts of personnel and production problems in urgent need of attention. The present article is not the place to report the results of their work on these problems, but it so often proved valuable that sales resistance against it practically vanished. Although this wartime experience better equipped many psychologists for practical services in business and industry, they cannot expect their services to be accepted in peacetime without properly directed promotion. The prime factor in such promotion is the presentation of evidence to business executives that the results of psychological work are worth their cost.

MEANS OF PROMOTION

Both direct and indirect means of promotion are effective. The latter consist chiefly in publishing articles pertinent to business problems in suitable journals, participating in conferences of business associations, and developing favorable contacts with the officers and executives of business concerns. The general and quite legitimate aim of these efforts is to establish the psychologist's professional standing and his competence in certain fields, since these are the chief things he has to sell. His own personality may constitute a valuable asset or a serious liability. He should consider its effects with the same objectivity he applies to other psychological problems. He should also take pains to acquire a real understanding of the actual conditions and problems faced by businessmen. His academic degree, the doctorate in psychology from an accredited university, signifies his basic training, but prospective employers and clients will not beat a path to his door unless the nature, and particularly the quality, of his work becomes known. No amount of good promotion will offset poor quality of work. Hence, modest claims, integrity, and full measure of well directed work on every assignment accepted always serve to place the abler men ahead of the less competent and the charlatans in the long run.

For more direct promotion, use may be made of circulars or brochures describing services, or, with better chance for continuity and of creating interest on the part of recipients, a series of informative bulletins may be issued and mailed to possible clients. Such promotion is generally more effective under the aegis of a consulting agency than when undertaken by an individual psychologist, especially if his primary connection is teaching at a university and consulting work a secondary matter. Whatever forms of promotion are used, the desired outcome is an opportunity to present specific proposals for research work, or for other forms of service, to business organizations, and it is in the formulation of such proposals that the nature and scope of the work to be done by the psychologist or the consulting agency are defined.

SPECIAL CONSIDERATIONS

In selling proposals for research, it must be borne in mind that no promises can be made as to the findings. The preplanning of an experiment or an investigation to be undertaken for a client must never be in the nature of framing it to produce a certain result, no matter how desirable that result might be for the client's business. Quite naturally, any client may hope for favorable findings, and a research proposal may properly present them as *possible,* but the client's chief reason for seeking counsel or undertaking research is that he may be guided by the best evidence obtainable within the limits of time and funds available. Hence, what reputable clients want and are willing to pay for in research is *dependability,* and this is the major responsibility of the research agency.

Another consideration in research work is the time element, or rather the fact that uncertainty as to where initial studies may lead makes freedom and continuity in the conduct of research desirable if its cumulative benefits are to be reaped. "Research," as one writer puts is, "is not like a sausage machine into which brains are poured at one end and profitable ideas appear automatically at the other." Rather, it is a matter of patiently accumulating small ideas and piecing them together. On many practical problems, research thus serves as a kind of reconnaissance for advances and improvements in methods and procedures. Given wider latitude, there is always the prospect that the accumulation of small ideas may result in the formulation of a big idea, or the discovery of something of far-reaching importance. Hence the psychologist must often endeavor to sell the long-range point of view with regard to his work.

The standards for scientific work are the same in any field, but in business and industry strict adherence to time and cost schedules are generally required. Since there is often competitive bidding for research jobs, it is highly important to the successful operation of a research agency that it be able to estimate and control its own costs. This is often difficult until hard-earned experience has been gained on interesting jobs which have ill-advisedly been undertaken at too low a figure. The best corrective is thinking every problem through before proposals are offered. In estimating his costs, it is well for the planner to use the customary steps in any well-designed experiment as an outline and to enter beside each step the probable requirements in the way of personnel, facilities, materials, time, and so forth. To the sum of these estimated expenses, including proper hourly or per diem rates of pay for the personnel involved, he must then add a sufficient amount to cover his own or his agency's overhead and to yield a reasonable profit.

A CONSULTING AGENCY

The work which psychologists may do for business organizations is so varied that a consulting agency needs a staff of specialists even though the basic training of all the members is similar. Thus a representative agency such as the Psychological Corporation has grown over a period of years to the point of maintaining a staff of approximately twenty psychologists and a large office force. In certain of its services about two hundred psychologists in other parts of the country also cooperate. It now operates five nominally separate divisions which may be described briefly as follows.

MARKETING AND SOCIAL RESEARCH DIVISION

This division conducts consumer surveys and public opinion polls and serves clients with regard to problems in the fields of selling, advertising, and public relations. In cooperation with about 125 psychologists throughout the country and students carefully trained as interviewers, this division conducts periodic surveys on a nationwide scale at regular intervals for the study of trends and changes in consumer preferences, buying habits, and attitudes and opinions on various political and social questions.

INDUSTRIAL DIVISION

The services of this division pertain chiefly to employee selection, training, and upgrading procedures, but extend to methods and conditions

affecting the output and welfare of employees, attitude surveys, and to supervisory and management problems. The members of its staff generally work for periods of time in the plants and offices of client companies. In collaboration with the Corporation's test division, it develops tests and interviewing techniques especially designed for use in business and industry, and installs these for companies retaining its services as counsel, or those of someone properly trained in their use. It also serves companies desiring to send applicants or employees who are being considered for certain positions or types of work to the offices of the Corporation for special examination and report concerning their abilities, interests and personality traits.

Staff members of this division also collaborate with other divisions in research on problems of designing mechanical equipment, procedures, or products of any sort, to best meet the capacities and preferences of their prospective users.

CLINICAL DIVISION

This division (also known as the Psychological Service Center) renders psychological examining and counseling services to schools, organizations and individuals on educational, vocational and personal problems.

TEST DIVISION

The Test Division serves as a publishing, sales, advisory and research agency for all forms of psychological tests and materials. In addition to handling a volume of sales now amounting to several hundred thousand dollars a year, its staff engages in all phases of test construction, standardization and research.

DIVISION OF TESTING FOR SCHOOLS OF NURSING

This division provides a service to schools of nursing throughout the country for testing applicants for admission and for participating in research pertaining to selection and training of students. This service also involves the cooperation of many psychologists in other cities and towns, in addition to its main office staff. Insofar as practicable, the Corporation plans to develop similar services for other professional and special training schools.

PROBLEMS AND MISCONCEPTIONS

The common element in the work of all divisions of a consulting agency is the measurement of human behavior and the determination of cause-and-effect relationships in it. Thus, the work of all staff members of the Psychological Corporation is interrelated and collaboration is frequent.

Experience and familiarity with problems in special fields naturally develops special competence of psychological consultants. This competence applies, not only to methods and techniques, but also to knowledge of business problems and situations in specific organizations. The more thoroughly the psychologist understands the conditions and requirements in business, and in the particular companies he is serving, the more likely is his work to be effective and valuable. His task is to inform himself on these matters rather than to inform executives about psychology. He must have the wits to see the applicability of his special knowledge and techniques to the practical problems of the organizations, and he must also have the tact to gain the cooperation of those with whom he works and by whom the results of any research are to be used.

Although the value of scientific research is generally recognized in business concerns, there are frequent misconceptions as to the nature of services to be expected from psychologists. Thus, for example, the notion is common that psychologists can read employees' minds and hence explain promptly any peculiarities in their behavior. A good clinical psychologist can ably serve business organizations with regard to problem employees, but this is achieved only through painstaking assembly and study of all the facts in the situation and skillful interviewing. Furthermore, the process is one of reeducation in which the psychologist diagnoses the causes of difficulty and recommends remedial action, but this action must be taken by the persons involved. Thus the success of the psychologist's work, whether in research or clinical practice, and whether with individuals or with business organizations, depends chiefly upon the extent to which he can gain the confidence and willing cooperation of all concerned. In fact, a parallel might be drawn between practical research work on the problems of an organization and the clinical interview with an individual concerning his personal problems. In both cases, the purpose is to obtain as much reliable and pertinent information as possible as a basis for formulating a reasonable program of action. And in both cases the process to be effective must be an educative and cooperative one for both parties. Hence, in working with business organizations as well as with individuals, there is frequent need for dealing with confidential information, and this is vouchsafed only where there is mutual respect and certainty that confidences will be respected.

FORMULATING AND PRESENTING PROPOSALS

A few illustrations will indicate how opportunities for consulting services and research work with business firms are developed and the work administered. Inquiries are frequently made by companies concerning the use of tests for selecting employees. In many cases, the organization from which such an inquiry is received may have no one on its staff with the proper training in psychology, tests and measurements, and statistics to plan and direct an effective employment testing program. A tactful response is therefore in order. If the psychologist or consulting agency has suitable brief literature in readiness concerning the requirements for effective employment testing and the services rendered by psychologists this may be sent to the company with a letter asking the courtesy of the company's supplying information as to the training in psychology of the person in charge of its employment testing. This letter may also suggest retention of the agency's services in the event the company has no one professionally qualified for the work. Unfortunately, the impression is prevalent that little or no professional training is required on the part of persons in charge of employment testing. Hence, the effort of the consulting agency must frequently be to correct this impression, present evidence of the value of the professional psychologist's services, and make specific proposals.

Such proposals may be in the form of an agreement to execute a specific assignment or an arrangement whereby the agency serves as consultant over a period of time on a monthly retainer basis. The latter arrangement, which specifies services to be covered by the retainer and those for which additional charges may be made, is generally preferable from the standpoint of both the psychologist and the company. It provides for better continuity of service and the conduct of longer-range research projects from which the benefits are cumulative. A good consultant seeks to foster the spirit of scientific inquiry throughout the company and to gain the cooperation of executives and employees in constant search for improvements in methods and procedures.

Often the chief questions involved concerning retention of services are whether the application of research methods to a given problem are feasible and whether the results are likely to be of sufficient value to warrant the cost. There are several ways of meeting this difficulty. One is to show the results obtained elsewhere by research on problems of similar nature. Another, if the program of work indicated seems likely to run to considerable expense, is to break it up into a series of separate but related steps and quote charges for doing each of them. Thus, a start on a program can often be made at relatively small cost and further steps and expenditures decided upon later, if the results obtained provide encouraging evidence. This procedure is particularly helpful in marketing research, where, unless the data needed to provide proper evidence are collected in the field, no amount of clever manipulation or interpretation at the finish can rectify the fault. Obviously, the field work cannot be repeated except at great additional expense. Hence, preplanning and the pretesting of every question to be used in a survey are the prime factors determining success both from a scientific and financial standpoint.

It may be objected that too rigid preplanning may unduly limit the exploratory possibilities of a study or the chance of discovering unexpected elements in the situation. The answer, of course, depends on the purpose of the study. All that detailed preplanning demands is that there be a known and reasonably supported purpose for every question or procedure used. Thinking may well begin with "Let's try so and so," or "This would be interesting to find out," but such thinking must be promptly and mercilessly followed by such questions as, "How can we get this information?", "How dependable will it be?", and "Precisely what are we going to do with each item of information after we have it?"

TEST-TUBE STUDY

Here the importance of the preliminary small scale study, or "test-tube" approach, is apparent in which the integrity as well as the ingenuity and research skill of the psychologist are put to the most severe test. He may quite properly ask a client to pay a fee for a test-tube study in which he attempts to devise methods and test the possibility of obtaining dependable and useful results. But he must then be absolutely honest in advising his client as to limitations of the methods and the degree of dependability and probable usefulness of the results. Unless he does so, he stoops to the level of the charlatan and the quack.

Thus, preplanning and pretesting constitute the most satisfactory basis for honest presentation to the client of what he is buying, when he plans to

spend money for research, and not infrequently the chief value to him of retaining honest and competent counsel in such matters is to avoid wasting money in unnecessary or doubtfully dependable work.

GENERAL

The administration of consulting psychology in business and industry closely parallels the administration of any business in which a wide variety of services and products are marketed. The chief differences lie in the uncertain nature of the outcome of research services, the rigid scientific requirements to be met within the framework of the financial and time requirements of the business world, and the greater freedom and independence necessarily allowed to a staff of research workers as compared to the executives and employees of other organizations.

The success of a psychological consulting and research agency rests largely upon its ability to assemble an able group of psychologists as a staff and then maintain a nice balance between their independence and teamwork.

READING REFERENCES

Covner, B. J., "Principles for Psychological Consulting with Client Organizations." *Journal of Consulting Psychology*, 1947, 11, 227–244.

Gardner, B. B., *Human Relations in Industry*. Chicago: Richard D. Irwin, Inc., 1945.

Maier, N. R. F., *Psychology in Industry*. Boston: Houghton Mifflin Company, 1946.

Mayo, E., *The Social Problems of an Industrial Civilization*. Cambridge, Mass.: Harvard University Press, 1945.

Tiffin, J., *Industrial Psychology* (2nd ed.). New York: Prentice-Hall, Inc., 1947.

106. ADMINISTRATION OF PSYCHOLOGICAL SERVICES IN PUBLIC SCHOOLS

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Education in the United States is a function of the individual states. The only national control of education is in the administration of federal education funds (Smith-Hughes). States have set up their own laws governing public education, which vary in administrative policy, but the administration of education uniformly is placed in the hands of local boards which function under the regulations of the state. The local boards delegate their authority to superintendents of schools.

PSYCHOLOGICAL SERVICE

Psychologists perform a wide variety of services in the public schools. The frequency with which they rendered these services is given in order from a survey by Wiens (1941) as follows:

Individual intelligence testing, recommending exclusions, behavior cases, talks, discussions, consultations, reading disability cases, school placement, personality adjustment cases, referral to agencies, preparation of histories, achievement testing, conferences with parents, group intelligence testing, research, discipline cases, aptitude testing, supervision of mentally defective classes, educational planning, examination of preschool children, follow-up of reading disabilities, vocational testing, follow-up on mental exclusions, home visitations, supervision of special education, curriculum revision, vocational counseling, psychotherapy, teaching mental hygiene, teaching parent education, verification of birth certificates, foster home placement, and others.

RISE OF SERVICE

It is impossible to trace all the influences that gave rise to psychological service in the public schools. From 1890 to 1910 a new interest in the individual developed. G. Stanley Hall at Clark University, and James McKeen Cattell at Columbia Univer-

sity, inspired their students to study the child and to seek for individual differences. Lightner Witmer at the University of Pennsylvania showed the way to apply psychological knowledge to the needs of the individual. These men and others were training and inspiring students who, in turn, started new centers of research. It was during this period that the Chicago Public Schools began their Department of Child Study.

At the same time laws governing school attendance were more strictly enforced. Careful pupil accounting and closer follow-up of nonattendance cases soon brought to the attention of school officials groups of seriously retarded and often mentally defective children. These children could no longer be dropped or ignored. They were registered on the school rolls and something had to be done for them.

Teachers and administrators who received training in institutions for the mentally retarded were impressed with the handling of this problem by such men as Goddard at Vineland and Kuhlmann at Faribault. They sought the help of psychologists in their local situations. It is because of this early interest of teachers and psychologists in subnormal pupils that the psychologist is assigned to the department of special education in many school systems. Also, this original interest gave rise to the frequent use of the term "psychological clinic" for psychological services in school systems.

Historically, the next demand for psychological service in the public schools came from teachers and supervisors who were attempting to fit the curriculum to the needs of individual pupils. Psychological measurement of all pupils was required in this adjustment service. The psychologist was asked to devise tests that would disclose individual difficulty in learning reading, arithmetic, spelling, and writing. The psychologist helped set up standards for pupil progress and showed what could be expected from pupils of varying ability. As a result, in some school systems psychologists are found in the Department of Educational Research and their work is limited to devising tests and statistical studies. Another use for psychological service was in the field of pupil personnel. Psychological service was demanded by those departments dealing with pupil-teacher or pupil-school relationships. School counselors and attendance officers found the psychological recommendations absolutely essential in their work (Wallin, 1914).

EXTENT OF SERVICE

Psychological services are today offered in most of the larger public school systems in the United States. The National Education Association of the United States lists psychologists for school systems in cities of more than 100,000 population; and in cities with population between 30,000 and 100,000 it includes them among miscellaneous administrative and supervisory officers. A close study of available data does not indicate a fixed ratio between the population size and the number of psychologists employed. A school system in a small city often will have a psychologist on its staff while cities twice its size lack any formal psychological service. When smaller communities employ psychologists they are frequently listed as counselor, guidance officer, person in charge of tests and measurement, or teacher. Information of psychological personnel in schools was obtained by Wiens (1941) from 73 of the cities in the United States with a population of 100,000 or over. Only two cities with a population of more than 250,000, or 10 per cent, did not provide their own psychological services. Nineteen, or almost 50 per cent of cities of 100,000 to 250,000 population, relied either upon agencies outside of the school system or failed to provide such service.

ADMINISTRATIVE CONTROL

The 73 cities in the United States with a population of 100,000 or over were grouped by Wiens (1941) according to differences in administrative control of the psychological services. Those cities where a psychologist directs the psychological services and is responsible to the Superintendent of Schools form the first group. Departments responsible for psychological services in this group are labeled by such names as Department of Child Study, Bureau of Special Education, and Department of Tests and Measures. Eighteen of the 73 cities are found in this group, including Atlanta, Cleveland, New Haven, St. Louis, and San Francisco. The second group consists of 15 cities, including Baltimore, Birmingham, Boston, Chicago, New Orleans, New York, Philadelphia, and Washington, where an assistant superintendent with other responsibilities has administrative control of psychological services. A psychologist may or may not have immediate direction of psychological services in cities having this form of administration. A third form of administrative control, according to Wiens, groups all pupil-personnel services, including psychology, under the direction of an

assistant superintendent. This places psychologists, attendance officers, doctors, nurses, and other school personnel workers in one administrative division, and 5 cities have their psychological services organized in this manner, including Jersey City, Minneapolis, and Providence. The fourth group includes cities where a divisional director or head of a subject department is responsible for the administration of psychological services. Fourteen cities have this form, including Cincinnati, Newark, Pittsburgh, Rochester, and Tacoma. The remaining 21 of the 73 cities of 100,000 population or over either do not have any formal psychological services in their schools or depend on facilities outside the school system. This group includes Albany, Denver, Knoxville, Richmond, and Worcester, but psychological services may be performed in the schools of these cities without being so labeled. So it is seen that the administration of psychological services in schools varies widely with conditions where psychologists work under a chief psychologist who is responsible directly to the superintendent or assistant superintendent to conditions where they work under the direction of a department head in almost any subject.

PSYCHOLOGICAL ADMINISTRATION

In school systems employing only one psychologist, he is asked to apply his psychological techniques and procedures to any problem that may arise. First responsibility is usually for the mentally retarded child. The psychologist assists the attendance department, or he may be in charge of special education. Other groups in and out of the school system requisition his services insofar as his time is available. Administration of psychological service for him is of minor importance for he can do but a small part of what is needed. But when two or more psychologists are employed the problems of specialization in work and of administrative relationships with school officials become important.

There are two distinct trends in psychological administration in public schools. There is always a struggle between the demands of school groups for the use of psychologists according to their particular needs and the demands among the psychologists to achieve greatest professional efficiency. When the psychologists have been strong enough to resist the outside demands for control a centralized system of psychological services in the schools of a city has resulted; when the school groups have been stronger, the diffused system of administration has resulted.

CENTRALIZED SYSTEM

Where all psychologists and psychological services are in a closely knit division of the school system the work is referred to a central office where it is divided among the staff. Each psychologist is expected to handle every type of difficulty. The contacts with other school groups are made by the director of the division and not by the individual psychologist.

The following advantages are found in the centralized service: (*a*) Each psychologist handles a large variety of problems which offers a greater possibility for growth within the staff; (*b*) closer supervision of the demands on the psychologist's time is possible, which enables the director to balance services within the school; (*c*) constant contacts between psychologists make for a greater degree of uniformity in the services.

DIFFUSED SYSTEM

Under the diffused system of psychological service psychologists are assigned to various school units such as the department of reading handicaps. The psychological work is specialized according to the organization's interests. For example, a psychologist working in a department for retarded children may devote his whole time to the study and testing of slow pupils. He may have little or no contact with the psychologist assigned to the department of speech or other special departments.

The following advantages arise in the diffused system: (*a*) The psychologist can work along the lines of his special interests and can develop a greater degree of specialization than would be possible otherwise; (*b*) because he usually works alone, the psychologist is more likely to invent independent techniques; (*c*) the system is preferred by school departments as it gives them control of the psychological service when needed in their division.

But there are recognized dangers in the diffused system. There is insufficient contact with other psychologists and other psychological work to stimulate the psychologist professionally. Barriers grow so high that psychologists in special departments can no longer meet on common ground in discussion of their problems.

PSYCHOLOGICAL PERSONNEL

SELECTION

The success of the psychological service depends in large measure on the psychologists employed and

their recognition of the needs of the school. With a centralized system, where the work is divided and assigned to different staff members, it is advisable to have on the staff individual psychologists with varied specialized training. The fewer the psychologists employed the more important it is that they should be selected for versatility or ability to handle all types of psychological work. With a diffused system, the selection of psychologists depends upon the needs of the employing school group and is usually based upon the requirements of a certain position to be filled. For example, if the psychologist is to work in the department of speech it is important that his background of psychological training include special work in speech. Both the diffused and centralized type of administration have certain basic demands that must be considered in the selection of psychologists.

TRAINING. Psychologists themselves have come to realize only recently the necessity of training in other fields than psychology for those working in the educational field (English, 1940). The school psychologist is dealing with two important phases of life: learning and mental health. For work in these fields he needs not only psychological knowledge but an understanding of the general procedures of education, medicine, and sociology. He should be familiar with school practices and teaching methods. He must have a knowledge of physical health and an understanding of medical terminology. He must know the basic principles of mental health. He should understand the influences of social and physical environment on the developing individual. Teaching for a short time is desirable for school psychologists, and particularly experience in therapeutic teaching. It is one thing to recommend that certain procedures be carried out and quite another to carry them out.

PERSONALITY. Personality in its broadest sense is of vital importance for the school psychologist who must sell his services. His work expands as he himself is able to show its value. Often he is in an advisory capacity with no administrative control and he must be able to see errors in remedial teaching without being overtly disturbed. Frequently he sees a child only once or twice and he must be friendly and approachable to get the most out of these contacts.

CERTIFICATION

Psychologists must be certified to work in the public schools. This may be for teaching, for special psychological services, or both. Boards of Education can pay salaries only to those persons who have been certified or licensed by the state department of education as teachers, or those who have passed a civil service examination for special services.

TRAINING IN SERVICE

In the diffused system of psychological service little attempt is made to train psychologists while at work. But in the centralized system training becomes an important function of the officer responsible for psychological personnel. Of special value are the following methods.

OBSERVATION OF PSYCHOLOGICAL EXAMINATION. The school psychologist needs an opportunity to observe the work of others doing similar work. It is stimulating to carry on a test situation which is to be observed by others and the discussions following such demonstrations are helpful both to those observing the demonstration and to the psychologist performing the examination.

Special rooms can be provided where the child can be examined without being aware of the audience by means of the one-way screen (Gesell, 1940). Such a room can be used, not only for training in testing techniques but also for demonstration to teachers, members of the board of education, and of the educational staff who are interested in observing the psychologist at work. The usual difficulty of noise from observers behind the one-way screen, which interferes with the examination, has been met by dividing the observation room with mesh screened glass sash windows, to supply a one-way vision arrangement, and installing microphones in the inkwell to allow the examination to be amplified and transmitted through loud speakers to the observation room. It is possible under these conditions to carry on discussions at the time of the examination in the observation room.

ANNUAL REPORTS. Annual reports enable the psychologist to study his own work in relation to that of previous years. They indicate demands for special types of psychological service and show where a maximum return comes from a minimum of effort, which leads to better utilization of individual services among psychologists. These reports disclose unsolved questions and furnish the problems of individual research among staff members.

STAFF MEETINGS. Frequent staff meetings at which policies, procedures, and techniques of examination and therapy can be discussed are necessary for adequate training in service. These staff meetings are not to be confused with pupil conferences. During

such discussions variations in individual techniques are clarified, discrepancies in interpretation of examination results are ironed out, and differences in recommendations are reconciled.

WORKING CONDITIONS

The psychologist is so closely allied with the working unit in the diffused system that it is impossible to consider separate working conditions for him. The following discussion of working conditions implies a centralized system of some type.

A central office for psychological services in the school system is important as a place through which other agencies can be contacted. If psychological service is to be a success in the school system it must use existing groups to gather the information needed for better pupil adjustment. Also, it is necessary as an economy measure to avoid duplication of effort in data gathering machinery. For example, if group psychological tests are given by the research department their results should be available to the psychological service and not duplicated by it. A central office located closely to attendance, health, guidance, and social service bureaus usually contributes to the efficiency of the psychological services. It makes it easier to hold group conferences in which representatives of the various agencies may contribute to adjustment programs. If the central office of psychological service is made a clearing house for all necessary information on pupil adjustment, it will lead to greater cooperation among contributing agencies of the schools.

BASIC UNIT

Locating the psychological services in the individual school has many advantages. The principal and teacher will feel free to discuss individual problems of children and various educational procedures with the psychologist. A room for the psychological service in every school building is required for this purpose where the psychologist can examine and interview without being disturbed. A corner of the dispensary or teachers' rest room is often used for this purpose. As a rule, the principal's office is not an appropriate place.

ALLOCATION OF PSYCHOLOGICAL SERVICE

Administratively, the problem of how many pupils a psychologist should see is of importance: first, in estimating how widely psychological service can be distributed in the school system, and second, in estimating the need for additional psychological service. The total number of pupils the psychologist can see daily will vary according to the psychological problems considered. If the psychologist feels the pressure of too heavy a load his work will not be very satisfactory. It is impossible to predict at the beginning of an examination how much time it will require or what services shall be rendered. Therefore, it is recommended that the psychologist feel free to modify his daily program according to circumstances, based largely on his own judgment of the needs of individual pupils, and that his work be judged by its results in reports and recommendations.

The central office of psychological services is essentially a place where the public can contact the psychological service. Here pupils who are without a definite school connection can be seen, or children who are brought in by their parents can be examined. The central office best serves its purpose if it contains waiting rooms, test rooms and a large room for clerical service and for the file of psychological records.

It is necessary as an administrative matter to control the amount of time allotted to each school building, thus equalizing the psychological service in the school system and preventing any claims of discrimination. But the daily program in any school, affected as it is by holidays or special school programs, may make it inadvisable to visit a building at set times. The individual psychologist assigned to several schools in the school system can maintain flexibility of schedule and allow for such interruptions in equalizing service between buildings. Also, knowledge of local needs makes it advisable for the psychologist serving a building to make the selection of pupils for psychological service.

At no time can the psychologists serving individual school buildings hope to handle all the demands made upon them. They must be alert constantly to find better methods of selecting those pupils who need psychological services. If emergency problems, according to teachers' demands, are handled during the first six weeks of the semester, and the schools thereby relieved of their disturbing elements, there can be better selection later according to needs for psychological services. The problems of younger children are less involved than those of older children, and their remediation is more rapid. Their study takes less time and it may be administrative wisdom to encourage the study of the younger children, in preference to the older children who have reached junior or senior high, as a means of securing

maximal results from available psychological personnel in the school system.

PSYCHOLOGICAL RECORDS

Psychological records are kept in a central file of all children receiving psychological services. A central filing system prevents duplication and enables one to check on previous reports. This central file should be easily accessible to all members of the teaching staff, but caution should be exercised in the use to which reports are put. It is wise to consider psychological records as confidential within the school, and information in them should be divulged only to outside persons who may be concerned with making better pupil adjustment. It is advisable to require a subpoena before the record is released for legal action.

Psychological test scores are recorded on the pupil's school report card as well as on the psychological records of the central office. When it is not advisable, as occasionally happens, to place all of the information collected in psychological study in the pupil's school file, a summary can be made with reference to the complete psychological record in the central file. This is done to keep the reports from being misconstrued.

The psychological study should secure the solution of one problem at a time if it is possible to do so without neglect of the pupil. When the teacher knows that the psychologist is coming back to his school he is willing to carry on remedial work one phase at a time. Thus, the psychological record of a child in school seldom appears as complete or closed. It is fine for research to have complete records, but practically they are difficult to obtain. A great deal of the psychologist's time can be saved and a better selection be made of pupils for psychological services if the problem, the general health, and the social and educational background are summarized by the teacher before referral to the psychologist. This procedure aids in maintaining complete psychological records. But improvement in child adjustment, which is the important point, can be made if the psychological records are incomplete. The goal of complete psychological records often leads to practical inefficiency. Records required for research purposes usually can be completed upon their selection for any investigation.

Storage files are necessary for the cumulated psychological records of pupils passing through the psychological services of the school system. Records made 10 or 15 years previously may furnish valuable information to social agencies that are handling the problems of adults. Any long established clinic can furnish illustrations of how significant such data is in explaining later behavior, in interpreting the adult to society, and in advising courts upon their decisions.

PUBLIC RELATIONS

The importance to the school of cooperation with school groups and outside social agencies by its psychological service cannot be too strongly stressed. These relationships are of advantage both to the psychologist and to the educator. The pupil's welfare is of importance to all members of society.

EDUCATIONAL STAFF

The principal is held accountable by the superintendent for all that goes on in his building. This responsibility implies complete control and his word must be law. If psychological service is to function in the individual buildings it is essential that there be a harmonious relationship between the principal and the psychologist serving his school. Where there is a choice of personnel, the psychologists on the staff should be assigned to buildings as their principals desire rather than according to district or geographic administrative lines. Psychologists should be reassigned with a view to harmony when there are changes in principals. Minor clashes often create unsatisfactory working conditions.

The teachers are in immediate and continuous contact with pupils, and psychologists in schools need all the help the teachers can give to realize their objectives. The teacher's time is fully occupied not only with teaching, but with demands from parents, from supervisors, and for central office reports. The psychologist is likely to defeat his own purpose if he adds to these demands by requiring too much remedial teaching for any one pupil or too long histories. All attempts to conserve the teacher's energies will increase the value of the psychologist.

PARENTS

Favorable reports of psychological services by teachers to children and parents create an atmosphere furthering the psychological services to pupils. The pleased school official who makes the statement, "We are fortunate to have a psychologist on our staff and he will be glad to help you with your problem," increases the influence of the psychological service. The parent who reports to a neighbor in glowing

terms regarding her contact with the service assists the psychologist in improving pupil adjustment by giving prestige to his work. The parent must feel that his child or his child's problem is as important to the psychologist as to himself to assure this. There must be easy access to psychological service. A few hours set aside each week when parents can call on the psychologist without appointment is of advantage. There would seem to be no better way of furthering a child's adjustment than through his parents.

TALKS

Another approach to parents is through talks at parent-teacher meetings. When it is known that psychologists are available for talks to parent groups it is usually necessary to limit them to the available time of the staff. The information of the psychologist on child adjustment is of special interest to parents. While such talks are not as desirable in solution of particular adjustment problems as personal contacts with parents, they bring to a large group the knowledge of psychological services available in the school.

SOCIAL VALUE

The school is a public agency and its functions are being constantly surveyed, not only by parents but by tax-paying groups. If new techniques are introduced too rapidly, before they are understood by the public, excellent services may be jeopardized. It is necessary for the psychologist to prove the value of his work, not only to the school authorities, but to all people interested in educational welfare. The "general public" is a large group. Interviewing parents or giving talks to parent groups can only reach the fringe of it. Newspaper and radio publicity furnish the best means of informing people generally of the psychological services of the school. The public is interested in costs as well as services. It asks if the service is justified in the saving that it makes in suggesting proper types of pupil training. Does the work of the psychologist cut down human waste? Friendly newspaper contacts help to answer this question for the public. Newspaper stories should have a human interest appeal or be unusual. Often without violation of confidence newspapers can be given stories of particular children helped by psychological services. Research studies can be presented so that newspapers are glad to use them.

The psychologist himself has certain community responsibilities. He should be active in organizations allied to his work, such as community groups that deal with mental health, mental retardation, vocational counseling, and youth counseling. He should serve on committees studying social problems and research committees in recreation centers. He should be aware of the social value of his services to the schools and its relation to the general improvement of social conditions.

READING REFERENCES

Barker, M., "The Duties of a School Psychologist." *Journal of Consulting Psychology,* 1938, **2,** 180–183.

Cornell, E. L., "Certification of Specialized Groups of Psychologists." *Journal of Consulting Psychology,* 1941, **5,** 62–65.

English, H. B., "Fundamentals and Fundamentalism in the Preparation of Applied Psychologists." *Journal of Consulting Psychology,* 1941, **5,** 1–13.

Fenton, Norman, *Mental Hygiene in School Practice.* Palo Alto: Stanford University Press, 1943.

Thompson, W. H., "A Description of the New Psychological Clinic at the University of Omaha." *American Journal of Mental Deficiency,* 1940, **45,** 56–58.

Wallin, J. E. W., *The Mental Health of the School Child.* New Haven: Yale University Press, 1914.

Wiens, B. J., *Organization of Pupil-Personnel Services in City School Systems.* Cleveland: Western Reserve University Library, 1941.

107. STATE ADMINISTRATION IN PUBLIC SCHOOLS

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The individual states have three functions in providing psychological services in public schools: (1) the conduct of psychological clinics where such service is not provided locally; (2) the establishment and maintenance of adequate standards of training and certification of psychologists; and (3) the supervision of psychologists employed by local schools. A state organization to administer these functions is a comparatively recent development and is found in but few states. However, there is a growing awareness of these functions by state officials, and it is reasonable to predict that many more states will make provision for them.

STATE PROVISIONS

To determine the status of state administration of psychological service in public schools, the author asked the following three questions of state superintendents of public instruction in 1941 and again in 1947: (1) What state department or agency is responsible for this administration or supervision? (2) Are there psychologists employed by the state whose services are available to public schools? (3) Does the state exercise any control of standards through a system of certification or licensing or through other means?

EXTENT OF PROVISIONS

In 1941 replies were received from 36 states and in 1947, from 41 states. It is possible from these data to obtain a general picture of administrative provisions and also to note the nature of changes that have taken place within a period of six years. It should be kept in mind that this period has been seriously affected by war conditions, the probable effect of which has been to curtail development.

In 1941 thirteen states had agencies administering, or supervising, psychological services; in 1947 the number was eighteen. Of the eighteen states the administrative function of ten is limited to furnishing psychologists to public schools. Only in eight is there any supervision on the part of the state of psychologists employed locally. In six states this administration is performed by the department of education, in one by the division of public institutions, and in one it is a joint responsibility of the department of education and the department of health.

Sixteen states employ psychologists whose services are available to public schools. These services are provided under different conditions and often by several agencies. In one state the services are provided only in emergencies, e.g., delinquency; in another the local school must pay for the services; but in the main there seems to be no restriction except the limitations of personnel. In seven states two or more state agencies provide psychological services but there is no indication whether their efforts are coordinated or their procedures standardized. In seven states services are provided by the education department, in six by the agency in charge of mental health, in five by social welfare, in four by state universities or colleges, and in one by the health department.

The development of standards for the certification of psychologists serving public schools has not progressed as rapidly as the provision for services. Whereas sixteen states employ psychologists, only nine have developed certification standards. This is two more than were found in 1941. In seven of these nine the state exercises some supervision over locally employed psychologists; in only two is there supervision without certification.

STATE AID

Four states encourage the local employment of psychologists through state aid. One state pays a minimum salary for county public school psychologists; if more is paid the additional salary is prorated among the several school districts. One state, where the psychologists are employed by a noneducational state agency, requires the school district to pay for the services and then reimburses the district. In a third state $750 is contributed to the salary of a

psychologist working in one school district, $1,000 toward the salary of a psychologist serving several districts or working on a circuit. In another state the money given for the support ($100 per child) of special classes may be used to pay for psychological services.

CERTIFICATION REQUIREMENTS

Four of the nine states having certification provisions issue one grade of certificate, three issue two grades, one issues three grades, and one issues four grades. All nine states require college graduation and five a master's degree for one or more grades. It is difficult to generalize further because the different states follow different patterns.

Below is a brief summary of the certification requirements of the nine states:

Minnesota

1. Psychological Examiner
   Special courses: Some work in following fields: education of exceptional children; educational and psychological measurement; child development; behavior problems of children; remedial reading; and vocational and educational guidance
   Clinical practice: Five credits

Wisconsin

1. School Psychometrist
   Special courses: Twenty-four semester hours distributed as follows: general psychology, 6; educational psychology, 3; mental and educational tests, 3; laboratory course in psychometric techniques, 3; laboratory course in diagnostic and remedial educational techniques, 3; statistics, 3; mental hygiene, 3
   Clinical practice: Two years successful experience under approved supervision
   Other: Three years successful teaching experience

Wyoming

1. Psychologist
   Special courses: Psychology, 24 quarter-hours; measurements and statistics, 18 quarter-hours
   Clinical practice: 50 individual tests

Illinois

1. Qualified Psychological Examiner
   Recommended by a special committee appointed by Superintendent of Public Instruction and approved by the Illinois Association for Applied Psychology

Pennsylvania

1. Psychological Examiner
   Special courses: Courses in the following fields with minimum and maximum semester hours credit accepted: general and theoretical psychology, 2 to 6; psychometric techniques, 3 to 8; other specialized techniques, 8 to 15; related courses, 8 to 15
   Clinical practice: Three to nine semester hours, three of which shall be in connection with public schools; signed statement from person supervising this clinical practice; 135 clock hours equivalent to three semester hours
2. Public School Psychologist
   Special courses: Courses in the following fields with minimum and maximum semester hours credit accepted: general and theoretical psychology, 2 to 9; psychometric techniques, 3 to 10; other specialized techniques, 12 to 20; related courses, 15 to 30
   Clinical practice: Same as for psychological examiner except from 15 to 20 semester hours required

New Jersey

1. Limited School Psychologist's Certificate
   Special courses: Eighteen semester hours in psychology including advanced or educational psychology; psychology of childhood and adolescence; mental hygiene; psychology of exceptional children and clinical psychology
   Eighteen semester hours in the following fields (at least one course in each): statistics and educational measurements including mental tests; the theory and practice of guidance and remedial teaching; health education or educational sociology; school organization or administration
   Clinical practice: One hundred and fifty clock hours of clinical experience under supervision satisfactory to the State Board of Examiners
   Other: Elementary or secondary teacher's certificate, or three years of approved teaching experience under a valid teacher's certificate
2. Permanent School Psychologist's Certificate
   Special courses: Same as for Limited School Psychologist's Certificate
   Clinical practice: Three years successful experience under Limited School Psychologist's Certificate; 60 additional clock hours of approved clinical experience under supervision satisfactory to the State Board of Examiners

New York

1. Provisional School Psychologist's Certificate
   Special courses: Forty semester hours in the following fields with minimum and maximum hours accepted: advanced general psychology, 2 to 6; experimental psychology, 2 to 6; psychology and methods of teaching, 2 to 6; problems or principles of education, 2 to 6; educational measurements and statistics, 4 to 8; psychology of learning and growth, 2 to 6; psychology of adjustment problems, 10 to 15; clinical tests and procedures, 3 to 8; physical bases, 0 to 6
   Clinical practice: Four to 8 semester hours under qualified supervision; 30 clock hours considered the equivalent of 1 semester hour
2. Permanent School Psychologist's Certificate
   Special courses: Fifty-two semester hours in the following fields with minimum and maximum hours accepted: advanced general psychology, 3 to 8; experimental psychology, 3 to 8; psychology and methods of teaching, 4 to 8; problems and principals of education, 2 to 6; educational measurements and statistics, 4 to 8; psychology of learning and growth, 4 to 8; psychology of adjustment problems, 12 to 20; clinical tests and procedures, 3 to 8; physical bases, 6 to 8
   Clinical practice: Same as for provisional certificate

Connecticut

1. Examiner in Training
   Special courses: Fifteen semester hours in psychology and education; 6 semester hours (or equivalent) in training in psychological testing
   Clinical practice: Recommendation that candidate is qualified to begin psychological testing
   Other: Renewable annually for 5 years upon evidence of (a) continued study and (b) continued practice in giving individual tests; must work under supervision of a School Psychologist
2. Psychological Examiner
   Special courses: Thirty hours of graduate work in addition to the 15 hours of college credit required for the Examiner in Training. Of the 45 hours, 27 shall be distributed among the following: psychology and child development; psychology and personal adjustment; knowledge and understandings in the fields of socio-economic problems; educational methods; evaluation and its application to school problems
   Clinical practice: Eighteen semester hours under close supervision in an approved college or university or through internship; recommendation that candidate is qualified as a psychological examiner; 5 years experience in giving mental ability and educational achievement tests
3. School Psychologist
   Special courses: Requirements for Psychological Examiners; 3 years of graduate study in special field
   Clinical practice: Five years of successful experience in psychological testing

Ohio

1. Junior School Psychologist—4-year Provisional
   Special courses: Twenty hours distributed over following areas: individual and group testing; psychology of remedial instruction; special talents and defects; clinical psychology; abnormal psychology; statistics; mental hygiene; vocational guidance; social case work; psychology of learning; speech correction; psychology of personality; child and adolescent psychology; psychology of delinquency
   Clinical practice: Three hundred clock hours of practical experience under expert supervision
   Other: Teaching certificate valid in social studies or eligibility for same
2. Junior School Psychologist—8-year Professional
   Special courses: Same as for 4-year Provisional
   Clinical practice: Twenty-four months successful experience as Junior School Psychologist, or equivalent
3. School Psychologist—8-year Professional
   Special courses: Same as for Junior School Psychologist; Ph.D. or Ed.D. degree
   Clinical practice: Twenty-four months successful experience as Junior School Psychologist, or equivalent
4. School Psychologist—Permanent Certificate
   Special courses: Same as for Junior School Psychologist; Ph.D. or Ed.D. degree
   Clinical practice: Forty months of successful experience under 8-year certificate

PROFESSIONAL POINT OF VIEW. The standards of Connecticut and Ohio come nearest to what professional associations consider desirable. As more training facilities become available and as the number of adequately trained psychologists increases, it may be expected that the requirements in other states will be raised.

If we can consider the requirements for school psychologist's certificate presented above as representing stages in the development of standards, the pattern which is developing is fairly obvious. For the

highest grade of position a doctor's degree will be required. This will include 40 or more semester hours of specialized courses, representing specified fields of study, and the equivalent of from 3 to 5 years experience under competent supervision in giving tests and in clinical practice. For clinical practice to be accepted it must be approved by a psychologist of recognized standing.

TYPICAL ORGANIZATIONS

The organization and administration of psychological service on the state level will be illustrated as it exists in a few selected states.

MASSACHUSETTS

The responsibility for the administration and supervision of psychological service in the public schools was placed in the Department of Mental Health by a law of 1919, since amended twice. A Traveling School Clinic is attached to each state hospital and state school to operate in an assigned area. Each clinic consists of a psychiatrist, a psychologist or psychometrist, and a social worker. Its primary purpose is to examine retarded children for placement in special classes. However, under regulations prescribed by the Education Department and the Department of Mental Health, other children may be examined. Psychologists and psychometrists are selected from lists furnished by the Division of Civil Service.

PENNSYLVANIA

A public school psychologist is commissioned by the Superintendent of Public Instruction in the same way as a superintendent of schools. He is employed as supervisor of special education in a county (or jointly by counties not to exceed three) on the recommendation of the county superintendent of schools and approval of the County Board of School Directors. The State Council of Education is responsible for setting certification requirements. In addition to these psychologists, local school districts may employ public school psychologists in the same way as they employ a teacher.

NEW YORK

Most of the psychological service in the public schools, other than that rendered by local school psychologists, is furnished by the traveling clinics of the State Department of Mental Hygiene. These clinics are under the direction of a psychiatrist. The State Education Department exercises indirect control over psychological service through its school psychologist's certificate. A psychologist in the Division of Research of the Department, not only cooperates in the administration of this certificate, but exercises a decided influence on the character of the psychological examination and through certification standards, on the training offered by universities.

OHIO

The administration and supervision of psychological service is under the Division of Special Education of the Department of Education, which employs psychologists for such work. The purpose is to give to school districts a taste of the value of such service with the hope of encouraging them to establish their own service. The program seems to be accomplishing this purpose successfully.

CONNECTICUT

Connecticut was the first state to create a position of school psychologist to serve the schools of a whole state (1915). Over the years the purposes have changed. They are now to give help in understanding individual children and to supervise examiners in training. An effort is made to encourage communities to develop their own psychological service but this effort has not been very successful to date.

ORGANIZATION OF SERVICE

Because states differ so greatly in area and in population, it is inevitable that the size of the staffs rendering psychological service will vary greatly. A tentative estimate of the size of staff needed may be made by assuming that a psychologist can handle a maximum of 300 pupils a year (Cornell, 1936). Experience dictates that some degree of specialization in such areas as the examination of learning difficulties, vocational testing, examination of behavior and personality problems, classification of pupils, and curriculum adaptation to individual needs is desirable in the staff. The extent to which every special field shall be represented by a different psychologist will depend upon the size of the staff. With small staffs either several fields will be represented by one psychologist or the scope of psychological service will be limited.

The boundaries of the field of psychological service will vary in the different states according to the adequacy of other professional services. There is insufficient evidence at the present time to indicate under what auspices this service should be organized, except that it should be under an admin-

istrator with professional educational training. Nor is it known what kinds of relationship should be established with other agencies interested in child welfare. It is known, however, that cordial professional relationships are necessary for the best results. Psychological service will operate better in an organization of a functional than of a line-and-staff type.

TRENDS

The earliest demand for psychological service on the state level was for the examination of candidates for special classes for mentally subnormal children in the public schools. In certain states this still is the principal function. With the establishment of psychiatric clinics there was a need for administrators of the Binet and other tests, called psychometrists or psychological examiners. The better trained psychologists observed that many of the children examined had a specific learning difficulty, usually in reading, which observation led to a demand for remedial reading work. What will ultimately be the boundaries of the field of the school psychologist cannot be accurately described at the present time. The field is expanding. At present it touches and often overlaps the work of the psychiatrist, visiting teacher, counselor, attendance worker, and similar positions.

PROPOSED FUNCTIONS

The following ten functions summarize those proposed for the school psychologist by various writers: (*a*) examine candidates for special classes for mentally retarded children; (*b*) identify gifted and talented children and assist in planning a program for them; (*c*) examine children with learning difficulties and suggest appropriate remedial work; (*d*) examine children for exclusion from school because of mental disabilities; (*e*) advise children concerning their vocational fitness and adaptability; (*f*) advise children concerning their choice of an educational program; (*g*) assist teachers and principals in the solution of behavior difficulties; (*h*) assist teachers and principals in the classification of pupils, improvement of the marking system, curriculum construction, etc.; (*i*) help parents to understand their children's problems; and (*j*) maintain working relationships for the school with all child-caring agencies.

The psychologist who carries out these functions must be an individual with considerable tact and sufficient native ability and training to work with a high degree of independence. He must be able not only to administer tests but to interpret the results in terms of home conditions, associations with other children, school accomplishment, school behavior, individual attitudes and emotional life, teacher-pupil relationships, school classification, and curriculum standards and requirements. While the list of proposed functions fails to differentiate services appropriate to state and local levels, it may be considered in general equally valid for both levels.

PROPOSED ORGANIZATION

In large cities the state may function by setting certification requirements and giving advice and supervision, for it is assumed that large places can organize psychological services which will care for all their needs. In small cities, since complete psychological service is often not provided, professional assistance from the state may at times be needed. Thus, the state may be called upon for specialized psychological services, for example, vocational testing, in addition to the services provided in large cities. In villages and rural communities too small to furnish any regular psychological service, the state may well provide traveling clinics.

READING REFERENCES

Britt, S. H., "Pending Developments in the Legal Status of Psychologists." *Journal of Consulting Psychology,* 1941, **5,** 52–55.

Cornell, E. L., "Certification of Specialized Groups of Psychologists." *Journal of Consulting Psychology,* 1941, **5,** 62–65.

———, *The Work of the School Psychologist.* Albany: University of the State of New York, 1942.

Cutts, N. E., "Development of a Certification Procedure for School Psychologists." *Journal of Consulting Psychology,* 1943, **7,** 45–49.

Fenton, N., *State Child Guidance Service in California Communities.* Sacramento: The Supervisor of Documents, 1938.

Kelly, G. A., "A State-supported Child Guidance Clinic for Kansas School Children." *Kansas Teacher,* 1936, **43,** 6–7.

Shartle, C. L., "Occupations in Psychology." *American Psychologist,* 1946, **1,** 559–582.

Steer, M. D., "Licenses for Psychologists and Applied Fields." *The Indiana Association of Clinical Psychologists News,* 1940, **7,** 5–6.

Wisconsin Department of Public Instruction, *Provisions of the Wisconsin Statutes of 1939 Affecting Services Carried on by the Bureau for Handicapped Children.* Madison: Wisconsin Department of Public Instruction, 1940.

108. ADMINISTRATION OF PSYCHOLOGICAL SERVICES IN COLLEGES AND UNIVERSITIES

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PSYCHOLOGICAL SERVICES

Many college student personnel functions, such as housing, orientation, registration, financial assistance, supervision of extracurricular activities, and graduate and undergraduate placement, are not ordinarily subsumed under the category of psychological services. But it is a fair statement to say that virtually all student personnel services have their psychological phases and that the contribution of psychological practice is inherent in the student personnel point of view. Any attempt at classification of psychological services runs the risk of oversimplification and overgeneralization and one may find as many classifications as there are writers on the subject. With full recognition of the limitations entailed, the following classification of psychological services is presented: (1) educational and psychological measurement, (2) counseling, (3) remedial and therapeutic work, and (4) educational, psychological, and student personnel research.

EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENT

Educational and psychological measurement includes the construction, standardization, validation, administration, scoring, and interpretation of tests of intelligence, scholastic aptitude, educational achievement, vocational aptitude, academic and vocational interests, attitudes, study skills, and personality adjustment. The description and application of these instruments are fully discussed in a number of excellent references (Hawkes, Lindquist, and Mann, 1936; Buros, 1940; Green, 1941; Bingham, 1937; Paterson, Schneidler, and Williamson, 1937; Symonds, 1931). One important application of psychological tests is their utilization as a basis for college admission or as a check on admissions data. While the significance of intelligence and educational achievement tests has long been recognized by higher institutions in relation to the admission of civilian students, their unique value in connection with the college placement of World War II veterans has been much emphasized by the recommendation of a committee of the Association of American Colleges (1943) that "for returning members of the Armed Forces, the usual admission procedures be abandoned, or at least modified, and that the educational status of each returning student be determined primarily by the employment of aptitude and achievement tests."

A second application of tests, closely related to the problem of admissions, is their use for prediction of academic achievement. While intelligence test scores fall far short of perfect correlation with scholastic grades (correlations ranging from .40 to .60 are typically reported), the addition of differential achievement tests, reading tests, and study skills tests (Tyler and Kimber, 1937) contributes materially to the predictive efficiency of the entire test battery.

A third use of tests is the objective evaluation of educational achievement. The unreliability of teachers' grades is well known. While the direct utilization of standard educational achievement tests may be satisfactory in some instances, the psychologist can render a useful service to the instructional staff by acting as a technical consultant in the construction and statistical evaluation of course achievement tests specifically geared to the subject matter taught. In addition, such tests provide a useful check on the instructor's own teaching effectiveness, particularly when technically constructed departmental achievement tests are administered, and furnish an objective measure of individual scholastic attainment which may be evaluated

in the light of equally objective intelligence test results. Diagnosis of reading disabilities and ineffective study habits is a fourth application of testing principles and techniques. Many students of good intelligence and adequate motivation experience academic difficulties because of deficiencies in fundamental skills, tool subjects, and study techniques. The development of analytic and diagnostic tests which present a profile of subsidiary component functions rather than merely a total score (e.g., the Iowa Silent Reading Test, the Cooperative English Test, the Progressive Achievement Tests) represents a marked advance in testing in this area. Finally, the accumulation of test results provides a comprehensive fund of objective information which, integrated with data obtained from other university sources, serves as an indispensable basis for subsequent educational and vocational counseling.

COUNSELING

The aim of individual counseling is to provide the student with a clear understanding of his capacities, interests, and personality characteristics in order that he may evaluate his assets and liabilities critically and objectively in the formulation of educational and vocational plans. Effective counseling should be longitudinal rather than cross-sectional. It is a continuous process, not an isolated event, and, as such, it should be embodied in frequent contacts between student and counselor throughout the individual's college career. While textbook writers often speak of educational counseling, vocational counseling, personality counseling, religious counseling, health counseling, financial assistance counseling, and placement counseling, the "type" of counseling one performs is essentially a matter of emphasis. In practice, compartmentalized counseling becomes a textbook fiction, for human beings are integrative, not additive totalities, so that, if one insists on typological designation, one might more accurately refer to "mixed type" counseling.

Again, certain writers have attempted to delineate the stages of counseling as interviewing, testing, diagnosis of problem, analysis of assets and liabilities, cooperative solution, and follow-up work. This breakdown may be helpful to teachers of counseling courses but it is of questionable value to practicing personnel workers counseling an individual-with-a-problem. This criticism is particularly applicable in nondirective counseling (Rogers, 1942) in which the student, rather than the counselor, takes the lead in the counseling process and in which events follow a psychologically lawful but not necessarily logical sequence. This is not the place to discuss the relative merits of directive and nondirective counseling. The counselor's approach should be sufficiently flexible to permit of either technique, governed by considerations of objectives, kinds of problems handled, case load, and amount of available time. Speer's survey of negative reactions to college counseling suggests that either approach alone may have its limitations from the standpoint of counselee satisfaction. Among the major dissatisfactions in counseling expressed by forty-five college students in seventeen different Midwestern colleges and universities were the following: (1) the interview was unplanned, (2) recommendations were too vague, (3) the counselor talked too much, (4) the student was not given enough consideration, (5) the interview seemed to have no purpose or goal, and (6) there was a preestablished pattern in the counseling (Speer, 1945).

REMEDIAL WORK

When one considers that "at least 20 per cent of college freshmen make lower scores on speed of reading tests than the average eighth grade pupil" and that "we may as well face the unpleasant fact that a considerable number of college freshmen are poorly equipped to do college work because they do not know how to study well enough" (Bird and Bird, 1945), the need of remedial training of college students in fundamental tools of learning becomes all too apparent. When one further considers the fact that about 10 per cent of college enrollments come to the attention of mental hygiene units each year (Raphael, 1937) and that about 25 per cent of students probably need mental hygiene services (Raphael, 1936), the urgency of preventive and therapeutic personality counseling is self-evident. Unfortunately, many students are unaware of their shortcomings in these areas until negative guidance in the form of academic failure or probationary status compels them to take stock of themselves. Sound psychological practice presupposes the early detection and correction of psychological disabilities, but remedial work must be undertaken regardless of the stage at which the disability is discovered. Institutional practice tends to lag behind psychological advances, so that one may desire, but can hardly expect, that preventive measures will soon obviate the need of intensive remedial procedures.

Psychologists generally do not carry out the actual remedial work but rather act in the capacity of

technicians and consultants to remedial workers. Aided by a thorough case study of the individual and fortified with relevant test findings, the psychologist diagnoses the difficulty, isolates causative factors, and suggests possible methods of remedial attack. He must be able to identify the focal problem and to refer cases to appropriate specialists or agencies, such as reading clinics, speech pathologists, or how-to-study classes. If he is clinically trained, he may handle cases of personality maladjustment himself. If his training is not along clinical lines, or if the problem is severe, he will refer the student to a mental hygiene clinic or to a psychiatrist. In the case of relatively mild and uncomplicated reading weaknesses or study skill deficiencies, he may refer the student to books containing helpful suggestions on improvement of learning techniques (Bird and Bird, 1945; Robinson, 1946).

RESEARCH

The psychologist, by virtue of his training in the scientific method and in the critical evaluation of data, is in a peculiarly advantageous position to design and conduct research or to serve as consultant to research workers in the fields of student personnel work, testing, interviewing, counseling, remedial work, and methods of instruction. Technical assistance to college teachers in the construction of objective course achievement examinations, including the framing of questions, item analysis, standardization, validation, determination of reliability, and the prediction of grades in more advanced courses in the same field, will do much to mitigate the present inequities in the grading system. The establishment of local norms on intelligence and educational achievement tests will contribute materially to the applicability of these tests to a given institution. Experiments on instructional methods and related problems, such as the relative value of reading versus recitation, lecture versus classroom discussion, homogeneous versus heterogeneous ability grouping, demonstration versus laboratory instruction, large versus small classes, whole versus part learning, and massed versus distributed practice, have engaged the efforts of educational psychologists for many years. Research on study habit techniques (Bird and Bird, 1945) and remedial reading procedures (McCullough, Strang, and Traxler, 1946) is going on apace. The need for improved testing, interviewing, and counseling techniques has been stressed by many personnel workers (Williamson, 1939; Strang, 1946). More research is needed in relation to the psychological phases of college community life, extracurricular activities, financial assistance, religious counseling, and student discipline. More extensive and more carefully controlled follow-up studies in all phases of student personnel work is imperative. The advent of the veteran upon the college scene makes urgent the need for research on the reconstruction of curricula, the provision for accelerated programs, and the reorientation of many college courses in terms of contemporary life (Blaesser, 1945).

ADMINISTRATIVE PROBLEMS OF ORGANIZATION

Formerly, college student personnel services were evolved rather than systematically planned, and earlier there was much confusion arising from the overlapping functions of autonomous, noncooperating personnel departments. Personnel functions were largely performed by untrained workers, and psychological practices played an incidental role in a sprawling, ill-directed production. While changes in the direction of increasing specialization and coordination have taken place since the turn of the century, "a master blueprint of organization for student personnel work does not exist" (Blaesser, 1945, p. 85).

STUDENT PERSONNEL WORK

Administrative organization of personnel functions in higher institutions may be classified into the following types of systems: (1) decentralized, (2) coordinated decentralized, (3) modified centralized, and (4) highly centralized. Under the first plan of organization, the various personnel departments function independently with little or no administrative integration or mutual exchange of data. Under the second plan, the specialized departments are unified by a coordinating council or committee composed of representatives or heads of all student personnel departments and, in some instances, of representatives of the instructional staff as well. Administrative control is jointly exercised rather than allocated to any one member of the committee. Under the third plan, supervision of certain personnel functions is the responsibility of a single administrative officer, such as a dean, who also maintains staff or advisory relationships with instructional departments and with officials or agencies discharging other personnel functions. Under the fourth plan, assignment of all personnel functions is made to one office or individual, generally desig-

nated as the dean of students or the director of personnel, who administers personnel services in cooperation with a small specialized staff. Centralized administration of specialized personnel departments is in force at the University of Chicago (American College Personnel Association, 1938). A dean of personnel administration administers some personnel functions and maintains supervisory and coordinating relationships with others at the University of Oregon (Onthank, 1934). A coordinator maintains staff relationships with all personnel departments through personal contacts and through the work of a personnel council at the University of Minnesota (Williamson, 1939).

While a highly centralized administrative organization may not be feasible in large universities, centralized policy-making and administrative coordination of specialized personnel departments must be achieved to preclude jurisdictional conflicts between psychological and nonpsychological personnel functions and to obviate duplication of data and conflicting recommendations. The majority of colleges and universities still lack effective personnel coordination, although many render lip service to the underlying educational philosophy of treating the student as an integrated totality rather than ministering to him in piecemeal fashion. Postwar problems will provide a strong impetus to increasing integration of student personnel work, although the specific form of integration will depend upon the nature and size of the institution and the number and variety of its personnel workers. The observation of a special subcommittee of the Student Personnel Work Committee of the American Council on Education is pertinent: "Most student personnel programs of prewar and war days have suffered through lack of proper structure and planning, because independent departments and agencies have been unaccustomed to think of themselves as components of the larger whole. The postwar demands will throw a great strain upon any uncoordinated student personnel program" (Blaesser, 1945).

STUDENT PERSONNEL RECORDS

College personnel records consist of college admission forms, scholastic achievement forms, intelligence, achievement, and other psychological test data forms, instructor's rating-scale or anecdotal reports on the student's personal qualities exhibited through classroom behavior, medical examination records, and personal data records obtained from a variety of personnel sources. These records provide basic data needed in the instructional and counseling programs, furnish information for reports to other institutions or to prospective employers, and serve as a basis for personnel research.

The filing of student personnel records raises an issue immediately relevant to the preceding discussion of administrative organization and may be regarded as a special case in point. Considered judgment suggests that the disadvantages of decentralized organization accrue to decentralized filing as well, and that a system of central record-keeping is to be preferred to special departmental filing. Separate filing of data in a number of specialized personnel departments tends to limit the effectiveness of the personnel worker dealing with a given student at a given time. Where the case records of the psychologist are not readily accessible to the placement officer, for example, part-time job placement appropriate to the student's capacities, needs, and temperament may require the omission of such data from consideration or require its reaccumulation at a level of lesser technical competence. Similarly, a more equitable distribution of student financial aid can be effected when one administrative office for loans and scholarships has at its disposal admissions data, medical records, character ratings, and intelligence and achievement test data.

The most efficient use of student personnel data can be made when all the information on an individual student is filed in a cumulative record folder. This record should be maintained throughout the student's period of matriculation and should consist of successive additions of pertinent data at frequent intervals. Individual counseling could then be based upon the cumulative record and the results of counseling in turn become a part of that record. It is of the utmost importance that all information be kept confidential, since faculty members sometimes refuse to put their observations in writing because of fear that the records will fall into irresponsible hands (Lloyd-Jones and Smith, 1938, Chap. 16). Provision should be made for central filing of the cumulative record or for a system of record exchange so that the necessary information may become available to the personnel worker with a minimum of delay and red tape. Abstracts of the more relevant data could also be made for inclusion in department files. Exchange of decentralized data, not contained in sufficient detail in the abstract, might also be facilitated by telephone conversation, interdepartmental messenger service, and group conference. Columbia University (Hawkes, 1931) and the

University of Chicago (Boucher, 1935) are among the higher institutions that have found central files of personnel information both feasible and advantageous.

TESTING AND COUNSELING

Administrative control or responsibility in the areas of testing and counseling frequently devolves upon the dean of men or the dean of the college, the dean of students, the director of personnel, or the chairman of a faculty committee responsible to the dean. The dean of men and the dean of women are responsible for counseling services in the majority of colleges, while certain colleges have a freshman dean who coordinates the counseling services of first-year students. The need for coordination or centralization of administrative control is as great in connection with this particular personnel service as it is in relation to personnel functions in general, if jurisdictional conflicts and overlapping testing and counseling is to be avoided. Testing and counseling services should be coordinated with all personnel functions, including health, placement, and extracurricular activities, and should be integrated with the institution's educational philosophy through centralized supervision and policy-making if a unified personnel approach is to be achieved.

There are many advantages to a centralized university testing service designed to handle all phases of psychological testing in relation to all types of problems. Decentralized testing by different personnel departments in connection with admissions, academic failure, curricular selection, vocational choice, remedial training, and mental hygiene violates economy of time, space, personnel, and cost and does an injustice to the student by unnecessary duplication or overlapping of testing. The identical test, or a test which taps a function previously measured, is often administered to the annoyance of the student and the subsequent chagrin of the counselor. The large volume of cases handled by a centralized testing bureau also permits specialization of personnel, physical facilities, and services. Well-trained psychometrists may be engaged to administer group tests in adequately illuminated and ventilated testing rooms free from the unpredictable effects which cramped quarters, unplanned physical layout, and auditory distractions may have on valid test performance. Specialists in the administration and interpretation of individual intelligence examinations, projective personality techniques, and diagnostic subject disability tests may be employed on a full-time basis in order to render adequate psychological service to individuals whose performance on the usual group paper-and-pencil tests is unrepresentative of their fundamental capacities and personality characteristics. Other psychometric specialists familiar with the demands of educational curricula and occupational objectives may be profitably utilized in the highly important process of test battery selection in connection with educational and vocational counseling. Where testing is decentralized and performed by unspecialized personnel, the policy of administering a uniform battery to all students is too often followed, regardless of the nature of the individual problem. A group intelligence test may not be suited to an emotionally unstable student who becomes tense and nervous during classroom examination; a verbal intelligence test may do grave injustice to an individual with a severe reading disability. Test batteries must be made sufficiently flexible to accord with individual needs. Group testing is not synonymous with mass testing, and no testing program, however economical in time and personnel, is justified which ignores the psychology of individual differences.

A centralized testing bureau may also secure sufficient financial appropriation to justify the purchase or rent of an I B M scoring machine, which will permit the scoring of a maximum number of group tests in a minimum amount of time. This scoring service may be made available, not only to personnel workers, but also to instructional departments using objective course examinations. The machine will ultimately pay for itself, since the reduction in clerical staff and the repeated use of the same test booklets constitute a long-term economy. In addition, machine scoring assures the student of early attention to his problem by occasioning minimum delay between testing and counseling.

ADMINISTRATIVE PROBLEMS OF PERSONNEL

FACULTY COUNSELORS

In the majority of higher institutions, educational, vocational, and certain phases of personal counseling are performed by faculty advisers or counselors rather than by personnel specialists. In some colleges, all faculty members are made responsible for the counseling of a given group of students, usually without any adjustment in their teaching program, while in other institutions, a special staff of faculty

advisers are charged with the responsibility of student counseling (Brumbaugh, 1941). Historically, faculty counselors began as registration advisers. Later, more extensive faculty counseling was performed as a voluntary extracurricular activity. More recently, trained faculty counselors have been engaged in student counseling, usually with a reduction of their teaching load and an adjustment of salary to include counseling duties. A recent report of the American Council on Education suggests that each trained faculty counselor devote from one third to one half of his time to counseling, that he be made responsible for approximately fifty students, and that ample time be provided for him to study the paper records of each individual, consult with the student's instructors, get full reports from referral sources, and conduct frequent interviews with each student throughout the school year (Blaesser, 1945).

There are both advantages and disadvantages to the faculty counseling system. The following entries may be made on the asset side of the counseling ledger: (1) the faculty counselor is in an excellent position to counsel students with reference to problems peculiar to his field of instruction; (2) faculty counseling can contribute to improved teaching by increasing the instructor-counselor's awareness of student problems and attitudes; and (3) faculty counseling conduces to administrative flexibility with consequent budgetary savings in small institutions, where restricted case load and seasonal fluctuations preclude employment of a full-time personnel specialist. On the other hand, the following disadvantages may accrue: (1) faculty counselors lack formal psychological training in counseling techniques and test interpretation; (2) their major interest is in teaching, rather than counseling; (3) faculty counseling is a part-time job spread over two fields, instruction and counseling, each of which requires full attention; (4) evaluation of the student's intelligence, aptitudes, interests, and personality is frequently subjective in the sense of not being predicated on objective test results; (5) the faculty counselor may tend to oversimplify the problem by seeking instructional rather than psychological explanations and by focusing attention on symptoms rather than causes; and (6) he may err in the opposite direction by complicating the problem unnecessarily through the invoking of esoteric "psychological" explanations.

PERSONNEL SPECIALISTS

In contrast to faculty counselors, who handle relatively straightforward and uncomplicated educational, vocational, and personal problems of students, the personnel specialist in the areas of psychological measurement and interpretation, mental hygiene, and diagnostic and remedial techniques, deals with a wider variety of personal, social, and life-adjustment needs (Wrenn, 1939). He serves as a "clinical counselor" (Williamson, 1939), consults with the instructional staff and faculty counselors on the interpretation of test results and on problems requiring specialized knowledge, and may conduct or supervise personnel research. He generally has a master's degree, and sometimes a doctor's degree in psychology, guidance, education, or personnel work, which is preferable. The following six advantages of the personnel specialist over the trained faculty counselor may be mentioned: (*a*) he brings to his work a thorough psychological training and background; (*b*) he is more familiar with psychological tests, interview techniques, and counseling procedures; (*c*) he may combine the advantages of theory and practice by teaching in his field of specialization; (*d*) he is more aware of resources available at the professional level; (*e*) he is qualified to recognize problems requiring special attention and to make referral to appropriate sources; and (*f*) he is qualified to handle a wide range of cases with respect to both type and degree.

Full-time personnel specialists are rare in most higher institutions because the demand far exceeds the supply (Darley and Wolfle, 1946) and because the salaries offered are often less than the professional counselor can receive in business, industry, and civil service. To advocate the replacement of faculty counselors by personnel specialists would therefore be unrealistic and shortsighted. Faculty counselors perform an important service in their own right and are quite competent to handle the majority of problems which students present. What is needed is a closer working relationship between these two kinds of personnel workers, a relationship which is complementary rather than overlapping, in order to insure the optimal contribution of each to the common objective—the fullest physical, intellectual, emotional, and social development of every student.

QUALIFICATIONS AND TRAINING OF FACULTY COUNSELORS

Faculty counselors in the past have sometimes been selected on the basis of ineffectiveness of teaching or fluctuation in teaching load rather than in terms of their effectiveness as counselors. A faculty member who did not come up to expectations as an instructor was shunted into counseling to make way for a

more competent teacher or to take up the slack of reduced enrollment. The recent trend, however, is to choose faculty counselors according to rigorous selective criteria. Most fundamental of all, perhaps, is an interest in students as well as in curricula, in a desire to understand the individual as well as to minister to his intellectual needs. Personal adjustment of the counselor is also desirable. The faculty member who is temperamentally unsuited to maintaining congenial individual student relationships or who projects his own feelings of insecurity into the counseling situation cannot be an effective counselor. In addition, a continuous program of in-service training is a *sine qua non*. The personnel specialist can make a valuable contribution in this area by supervising such a program, which should include training in test interpretation, interview procedures, counseling techniques, occupational information, remedial or referral procedures, record-keeping, and application of the results of recent student personnel research.

QUALIFICATIONS AND TRAINING OF COLLEGE PERSONNEL SPECIALISTS

A number of institutions have set up their own job specifications and qualifications for personnel specialists. Probably the best single description of duties and qualifications is contained in Shartle's (1946) job analysis of occupations in psychology. Those titles which appear immediately relevant to the term "college specialist" as used in this discussion are: (1) psychologist, college teaching, (2) counselor, college, (3) educational research, college, (4) psychologist, clinical, general, and (5) psychometrist. A brief abstract of the major duties and qualifications for the job, college counselor, may be taken as representative of personnel administering psychological services in colleges and universities, provided it is remembered that certain of the more specialized functions, such as remedial work, mental hygiene, and research, are performed by psychologists assigned other titles in the list. According to Shartle, the college counselor (1) performs educational, vocational, personal, and social guidance, (2) may assist students in finding full or part-time work; (3) makes use of personal interview, test results, school and college grades, reports from instructors, course requirements, and other data; (4) may have charge of a testing program and administer and interpret group and individual psychological tests; (5) contacts college instructors regarding student's programs and progress; (6) may teach classes in psychology and personnel; and (7) may be required to supervise other counselors and to "sell" the program to administrators. Among the qualifications for this position, which is open to both men and women, the following three are considered desirable: (1) a master's or a doctor's degree in psychology, guidance, education, or personnel work, (2) several months of supervised practice or previous experience in interviewing, counseling, or industrial personnel work, and (3) such personal qualifications as sincere interest in students' problems and ability to make good first impressions and establish rapport with students.

TRAINING OF JUNIOR STAFF MEMBERS

The problems of supervising the training of junior staff members or inexperienced personnel in a college counseling program are discussed by Bixler, Bordin, and Deabler (1946). These problems include: dealing with prospective counselors who have severe personality difficulties of their own, the lack of a professional attitude on the part of student clinicians, and inadequate counseling by students in the early phases of their training. At the New York University Testing and Advisement Center, junior staff members, employed as graduate assistants, undergo continuous training which consists of (1) preliminary orientation to the procedures and policies of the Center, (2) auditing of initial fact-finding and final appraisal or counseling interviews, (3) conducting an initial interview under supervision, (4) conducting an initial interview on their own subject to the critical comment of senior staff members, (6) observation of group testing procedures, (7) administration of group tests, (8) scoring of group tests, (9) construction of test profiles, (10) administration and interpretation of individual tests, (11) writing reports on individual behavior in the testing room and on the results of individual tests of intelligence and achievement, (12) checking of individual folders for the inclusion of all tests assigned and for the use of appropriate norms, and (13) selection of test batteries relevant to the individual's age, education, cultural background, employment experience, and mental or physical disability. In addition, all junior staff members attend classes conducted by various senior staff members on interviewing and counseling procedures, test interpretation, and discussion of individual cases. Junior staff members audit counseling interviews but do not conduct such interviews independently. Prospective senior staff members and counselors, in view of their more extensive educational training and employment experience, undergo a similar but more inten-

sive and more highly geared orientation program, with attention focused on test interpretation, counseling techniques, and integration of their functions with those of the junior staff members.

CONCLUSION

The increasing complexity of the administration of psychological practice in colleges and universities in recent years has paralleled the increasing complexity in student personnel organization and the expansion in psychological services incident to effective student personnel work. An urgent need exists for the greater coordination of personnel departments and for the utilization of more highly specialized personnel workers. The work of the faculty counselor must be supplemented but not replaced by professionally trained counselors. The personnel specialist, in turn, must discharge his responsibility as technician, clinician, and consultant to both instructional staff and fellow personnel workers. A special committee on student personnel work of the American Council on Education (Blaesser, 1945) summarizes this point of view by suggesting the following administrative guides to student personnel work in the postwar college: (1) the designation of a personnel coordinator, (2) the integration of the personnel and instructional programs, (3) the careful selection and training of faculty counselors, (4) the selection of competent personnel specialists to work in the areas of psychological measurement and interpretation, mental hygiene, remedial speech, and remedial reading, (5) the maintenance of a system of central record-keeping or a system of record exchange, (6) the execution of a program of continuous institutional research on its personnel program, and (7) adequate financial provision for the personnel program as a part of the institution's regular educational expenditures.

READING REFERENCES

Blaesser, W. W., et al., *Student Personnel Work in the Postwar College*. Washington, D.C.: American Council on Education, 1945.

Erickson, C. E., and G. E. Smith, *Organization and Administration of Guidance Services*. New York: McGraw-Hill Book Company, Inc., 1947.

Lloyd-Jones, E. McD., and M. R. Smith, *A Student Personnel Program for Higher Education*. New York: McGraw-Hill Book Company, Inc., 1938.

Reed, A. Y., *Guidance and Personnel Services in Education*. Ithaca: Cornell University Press, 1944.

Russell, J. D., *Student Personnel Services in Colleges and Universities* (Proceedings of the Institute for Administrative Officers of Higher Institutions). Chicago: University of Chicago, 1941.

Strang, Ruth, *The Role of the Teacher in Personnel Work* (rev. ed.). New York: Teachers College, Columbia University, 1946.

109 ADMINISTRATION OF PSYCHOLOGICAL SERVICES IN INSTITUTIONS FOR THE MENTALLY DISORDERED AND MENTALLY RETARDED

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The agencies concerned with the psychological study of mentally disordered and mentally retarded patients in institutions are varied in nature, but the administrative problems are essentially the same. This is true whether the institution is a psychopathic hospital which takes patients only for short-time observation, a hospital for psychotics which takes patients for longer periods, a school for the feebleminded, or a psychiatric out-patient department in a psychiatric or general hospital. The administrative differences are mainly in the emphasis which is placed on one or another of the functions.

The successful administration of a psychological department in any of these institutions is dependent upon two fundamentals: the recognition of well defined objectives and the establishment of an efficient

organization to carry out these objectives. The importance of the former is overlooked so often, with objectives therefore left unformulated, that a considerable part of the discussion which follows will be concerned with it.

PSYCHOLOGICAL FUNCTIONS

The institutions for the mentally disordered and retarded are usually made up of most or all of the following professional departments: psychiatric and medical, nursing, social service, occupational therapy, pedagogical, and psychological. The functions of the psychological services fall mainly into three major categories: examination, education, and research. A fourth, therapy, falls somewhat outside the usual requirements and will be given consideration separately.

PSYCHOLOGICAL EXAMINATION

The psychological examination comprises not merely classification but the descriptions and interpretations which the psychologist can provide, based largely on findings from objective devices, to help in the understanding of the patient and his disturbance. The examination contributes essentially (1) a description of what the patient is like in his various states with respect to certain relevant psychological functions, i.e., what he is; (2) implications which these psychological studies have for a therapeutic (educational, vocational, personality) program, i.e., what to do; and (3) the determination of the effects of whatever therapy may have already been used on psychological functions, i.e., the evaluation of what has been done. The psychologist uses the same devices for obtaining the answers to these questions as are used in all clinical psychological practice.

It is important that the psychologist be prepared to employ many different procedures because of the diversity of subjects, situations, and conditions which he is called upon to meet. Before applying these, however, it is essential that he develop an adaptive attitude with respect to their use, an attitude in many ways quite different from the more rigid one which he is customarily trained to have in dealing with normal subjects, an attitude which recognizes that procedure must be appropriate to the situation without sacrificing objectivity.

The actual tasks of the hospital psychologist include: (1) determination of levels and patterns of intellectual functioning; (2) determination of the existence and nature of special defects, such as amnesia, aphasia, and agnosia; (3) classification of feeblemindedness or various types of psychopathic conditions; (4) determination of the presence and extent of deterioration; (5) description of personality characteristics; (6) determination of the effectiveness of therapy or of medication; and (7) recommendations for vocational, educational or therapeutic programs.

Where adults are the dominant concern, the classificatory and descriptive functions may be emphasized; where children are in the majority, the problems may revolve more about therapeutic considerations. Not infrequently, too, the psychologist is called upon to study the institution's employees, particularly the attendant groups, for the purpose of aiding in selection or promotion. No matter what the setting, however, it is essential for the psychologist to make a contribution which will lead to the use of the psychological department in a consultative capacity. The psychologist is not a technician, merely turning out I.Q.'s or test scores.

EDUCATIONAL FUNCTION

The psychologist contributes to the education of other groups working in psychopathology. He can best convey psychological points of view and findings to psychiatrists informally during discussion of cases at staff conferences. He gives courses to psychiatric residents and psychological interns in general psychology, psychometrics, abnormal psychology, and experimental psychopathology. Other student groups with whom the hospital psychologist is most likely to have special educational contact are social workers, nurses, and occupational therapists. All courses are best organized about clinical material in which the interests of the particular group are exemplified. Occasional lectures on important psychological developments, cases of psychological interest, and research projects inform the hospital professional staff of functions served by the psychological department.

RESEARCH

The research carried on by the psychologist alone or in collaboration with other staff members is likely to be varied and can be roughly classified into four types: (1) diagnostic, (2) therapeutic, (3) theoretical, and (4) administrative.

DIAGNOSTIC. There is always a need for new discriminative procedures and for the evaluation of already existing procedures in relation to the specific hospital problems.

Therapy. There are many problems of therapy which require for solution an experimental clinical

approach, problems whose answers can be obtained more readily by psychological experiment than by the more time-consuming, conventional clinical method.

Theoretical. Psychologists can make a substantial contribution through research on the basic problems of psychopathology as opposed merely to the study of the symptoms of particular patients.

Administrative. The hospital may be studied as an organization to whose employees, patients, and procedures the individual patient has to make adjustments. Thus considered, the psychiatric hospital has been seriously neglected by those specializing in industrial psychology. Proper personnel is by far the most important factor in the treatment of mental abnormality, and more attention needs to be given to personnel relations in hospitals. Administrative research in hospitals offers sufficiently different problems from industry to be especially attractive to industrial psychologists. Another aspect of this field are the problems connected with the occupational placement of patients. Psychologists in schools for the feebleminded have already done a good deal toward determining the relationships between mental level and occupation.

THERAPEUTIC FUNCTION

Actual therapy and rehabilitation (including personal, educational and vocational therapy) are functions of the psychologist which are not clearly defined in hospitals. The therapeutic functions of the psychologist depends upon the particular institution and the particular psychologist. In institutions for the feebleminded, psychologists have as one of their functions not only organization of programs of therapy but actual execution of such programs. The practice of assigning such programs to the psychologist in psychiatric hospitals has in the past not been widespread. It was generally true in these hospitals that therapy, when done by psychologists, was primarily for research purposes. Increasingly, however, psychologists in such hospitals are playing a role in both the individual and group therapeutic programs.

PERSONNEL

A department of psychology organized to accomplish the aims outlined above requires the following personnel: a chief psychologist, research psychologist, one or more psychologists, and psychological interns. The expansion or diminution of this group will be determined by the needs and available resources.

STANDARDS

Standards for personnel and occupational designations vary from place to place but the general requirements for psychological personnel in psychiatric hospitals and institutions for the feebleminded is about as follows: The chief psychologist has a Doctor's degree in psychology and some three to five years of experience in the field of psychopathology. The research psychologist has the Doctor's degree and in addition has two to three years of research experience in general experimental psychology and in psychopathology. The clinical psychologist has at least a master's degree in psychology, with a few years of experience in psychometric work. However, the time is fast passing when clinical psychologists without the Doctor's degree will be generally acceptable. Psychological interns are with few exceptions at the graduate student level in universities, preferably in the third year of a four year program.

APPOINTMENTS

Appointments to positions in psychology are generally made by the head of the hospital or institution on the advice of the head of the psychology department. This may be either from a civil service list or from applications received directly. Selection is based on education, on experience, and occasionally on an examination. The usual tenure regulations apply if the position is on civil service. Ordinarily this involves a period of probationary appointment of six months or more during which time the incumbent may be dismissed for reason of inefficiency or questionable moral character. Upon the achievement of full civil service status the incumbent may be dismissed for these reasons only after a hearing if requested, or because of the abolition of the position. If the position is not on civil service, tenure is dependent upon the personnel policies of the particular administration, which vary considerably.

RESPONSIBILITIES

The chief psychologist's responsibilities consist of (1) administration of the department, (2) maintenance of professional and teaching relationships within the staff and throughout the institution, (3) supervision of routine psychological work, and (4) direction of research. He must delegate some of these functions at least in part to his assistants. The research psychologist is concerned primarily with research upon problems of psychopathology determined as essential to the institution. The senior clinical psychologist is responsible for (1) the training of the interns in diagnostic testing, (2) the supervision of contacts with the psychiatrists on specific cases as part of his supervision of the psycho-

metric work, and (3) the interpretation of findings to the hospital staff. The clinical psychologists, under supervision of the senior clinical psychologist, works with the more difficult diagnostic problems, those not assigned to interns, and aids in the supervision of the latter. The interns, who are at the institutions primarily for training, carry a certain amount of the diagnostic work in order to obtain necessary experience, attend courses, staff meetings, and seminars, and take part in research projects.

ADMINISTRATION

The process of administration of a psychological department is made easier by the preparation and use within the department of a manual of standard practice. Such a compendium of the accumulated experiences of the group adds immeasurably to efficiency through the orientation of interns and new members and saves much time on the part of members of the department in verifying exact procedure. It includes the standard practices for the major problems which arise in the administration of a psychological department, viz., regulations and experience in general practice, in special examination of patients, and in research. A presentation in outline of the contents of such a manual as prepared at the Worcester (Mass.) State Hospital, and as used there and at the Illinois Neuropsychiatric Institute, will illustrate the various aspects of administration.

GENERAL PRACTICE

In connection with the regulations and experience in general practice the following may be emphasized:

(1) *Administrative Organization and Regulations:* Included here are organization items and regulations covering the physical and personnel set-up of the whole institution, such as the procedures in handling of patients, the use of case records, keys, and staff maintenance. The trivial but necessary first things with which one has to be acquainted in order to become a smoothly functioning member of an institutional community are mentioned. Similarly, general departmental regulations are included with respect to hours of duty, absence from duty, routine duties in the maintenance of the department, and manner of use of departmental property.

(2) *Examination of Patients:* Descriptions of the kinds of patients who are generally referred for psychological examination, both intramural and extramural, are included, and procedures for obtaining patients and managing them while in the laboratory.

(3) *Routine of Psychological Examinations:* A general discussion of the routine of examination includes the psychological problems involved in the determination of handicaps, the observational techniques to be followed, organization of test batteries, order of tests in battery, use of "shock-absorber" tests, changes in standardized techniques of tests, scoring procedures and organization of batteries for multiple sessions; use of hospital and department case records in relation to the psychological examination; procedures in reporting the results of examinations, such as form, steps in supervision and approval, reports of unsuccessful examinations; and procedures in the examination of employees and other normal subjects.

(4) *Reading and study:* Under this heading are descriptions of facilities of the institution and of the training program for interns with its intra-department aspects of psychometrics, research, courses, and seminars and with its extra-departmental aspects of general orientation, acquaintance with special institution procedures, courses, staff meetings, case conferences, and special lectures.

SPECIAL PRACTICE

The descriptions of the steps to be followed in examinations are considered as follows: (1) *Schedules of tests:* Suggested basic schedules are included for different types of patients and situations, such as the illiterate, the specially handicapped, the various diagnostic medical types, and the various psychological problems. (2) *Psychological record:* Descriptions of the content of the psychological report are provided which include identifying data, handicaps, attitudes, special findings, examiner's remarks and impressions, interpretations, recommendations, comparisons with previous examinations and summarizing statements. (3) *Record-keeping and filing practice:* Detailed presentation of procedure in record-keeping and filing is given.

INSTRUCTION

A Test Instruction Manual supplies the description, instructions, scoring keys, and norms for the variety of tests used in psychological examination in the institution. It contains the standard test procedures and any modifications of these procedures in the way of presenting instructions, scoring and use of norms. It is especially valuable for the assembly of the data on performance tests ordinarily not found in any collected form.

RESEARCH

A general discussion of research principles and the

special problems which arise in carrying on research in the institution is included in the manual of standard practice. The various steps in research are considered in detail, among which are discussed the organization of the project and use of a project outline, giving the object, justification, method of investigation, required records and reports, required personnel, duration, and cost. Further considerations include suggestions for the collection and analysis of data, for reporting, and for the selection and maintenance of apparatus.

EQUIPMENT

The physical requirements of a psychology department depend, of course, on the number of its personnel and the scope and nature of its program. An average set-up provides a suite of well-lighted and relatively sound-proofed rooms in a central location, so that patients can be brought to it most conveniently from all parts of the institution, and adequate professional equipment.

SPACE

The rooms are of different sizes to serve the following purposes:

Examination. Plain undecorated rooms containing only the furniture needed for examination purposes.

Experimentation. Rooms required for research are those usually found in psychological laboratories.

Observation. At least one room is required with a one-way screen or mirror and an inter-communication system for the observation of patients and for the instruction of interns and students.

Offices. The department offices include small private rooms for staff members and a large central office, if separate rooms are not available, for the interns and students. A separate room is required for the clerical force, for storing test materials, and for filing the psychological records of institutional patients. Only originals of reports are sent to the institutional offices. It is desirable that all original records of examinations be kept permanently in the department files, together with carbons of the reports. This is necessary for research and reference purposes.

PROFESSIONAL EQUIPMENT

The following professional equipment is necessary:

1. A well-stocked and varied supply of paper and performance test materials of all kinds. A clinical psychologist in an institutional setting is called upon to work with such a great variety of subjects and problems—all ages, all stages of literacy, all states of physical health and all stages of mental disorder—that extensive test materials are essential. A sample file of the testing materials available on the market is a further aid in selecting examination devices suitable to meet these demands.

2. The experimental equipment needed will depend on the nature of the psychological problems of the institution and usually apparatus will have to be specially constructed for experimentation. A small shop in connection with the laboratory adds considerably to the efficiency of the experimental set-up.

3. A well-stocked library in the laboratory is necessary. It should contain dictionaries and handbooks on testing, experimental psychology, psychiatry, statistics, physiology and medicine for reference use by department staffs, interns, and students.

4. *Record Forms.* A set of record blanks specially devised to meet the needs of the institution is needed for use in the recording and reporting of test results.

COORDINATION

A psychological department which has the facilities discussed above is in a position to perform numerous services and make numerous contacts with the rest of the institution. The psychological department is directly responsible to the superintendent of the institution in administrative matters, to its clinical director in professional matters and teaching, to its director of out-patient departments for extramural work, and to its research director for research work. Thus, the psychology department has many lines of coordination with the various divisions of the institution. Through these numerous contacts the psychologist is afforded an incomparable opportunity to develop attitudes conducive to professional psycho logical service in psychiatric hospitals and institutions for the feebleminded.

READING REFERENCES

Shakow, D., "The Worcester Internship Program." *Journal of Consulting Psychology,* 1946, **10,** 191–200.

———, "Training for the Clinical Application of Test Techniques," in M. R. Harrower, ed., *Training in Clinical Psychology.* New York: Josiah Macy, Jr., Foundation, 1947, pp. 21–27.

Watson, R. I., *Readings in the Clinical Method in Psychology.* New York: Harper & Brothers, 1949, Parts I and II.

Wells, F. L., *Mental Tests in Clinical Practice.* Yonkers-on-Hudson: World Book Company, 1927.

110. ADMINISTRATION OF THE GENERAL PSYCHOLOGIC CENTER

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THE PROBLEMS THAT ARE BROUGHT TO A PSYCHOLOGIC CENTER

Psychologic centers are organized as institutions to which people can come for technical help in the solution of baffling problems of adjustment. They consult a psychologist because they are distressed by some aspect of their lives, because they have some persistent source of dissatisfaction, or some recurrent cause of discontent.

Originally psychological service institutions were chiefly concerned with clinical work, that is, with personal adjustment problems. A different type of psychological institution which developed later functioned chiefly in the industrial field. In recent years there has been a growing tendency for psychological institutions to include both clinical and industrial services. The word "center" is used in this section to designate this more recent and more inclusive type of psychological institution.

The problems which a general psychologic center is called upon to deal with include the whole range of maladjusted human behaviors of psychological origin. The variety is great and no widely accepted scheme of classification has yet been devised.

Clients often complain only of a vague state of anxiety, irritability, depression, or nervousness, of the causes of which they have no clear conception. On the other hand, for many others the *presenting trouble* is a discontent arising from some definitely known condition in the family, in the sex and love life, in the field of work, in social situations, or in parent-child relations, which they are unable to handle.

The following are illustrations of the kinds of difficulties for which clients come to a center. In the field of so-called personal problems are such things as shyness, alcoholism, obsessive ideas, phobias, lack of self-confidence, feelings of inferiority, indecision, difficulty in making friends, poor memory, and habit-ailments. The fields of sex and marriage include family disharmonies, impotence, frigidity, and other sexual maladjustments, impending divorce, or unhappiness following a divorce, marital friction, homosexuality, sexual frustration, and masturbation. In the field of work come vocational uncertainty and occupational dissatisfaction. Adolescents are commonly brought to the center because of problems of self-consciousness, rebelliousness, and poor school or college work. Parents bring children for such problems as disobedience, stealing, lying, nail-biting, enuresis, bullying, fears, temper tantrums, egotism, jealousy, unsociability, and reading difficulties. Employers consult a psychologic center on such matters as the selection, placement, transfer, and promotion of employes, the incentives to which workers will respond, the conditions of work that will best satisfy employes' desires for personal recognition and security, and the avoidance of conflicts and frictions among executives, supervisors, and workers.

The clinical situation is often complicated by the co-existence of diverse but interrelated problems. A man who consults for a doubt about his proper vocation, for instance, may be found to be obsessed with fear that his heart will stop beating, or a woman would-be author who consults because she cannot drive herself to write is also frustrated in her vain attempts to control an adolescent daughter.

The great diversity of ways of reacting have originated in a great variety of causal conditions. What

conditions have caused the behaviors shown by the particular client will depend on the personality of that client, that is, on the organization of his traits, purposes, habits, frames of reference, etc. Effective psychological practice must take account of the interrelationship of causal conditions, personality variables, and specific behaviors. It, therefore, requires much experience in the psychologist, and often a great deal of time, to disclose the environmental conditions and the personality traits that jointly have produced the distress, and then to bring about in them the modifications that will remove this distress.

THE STAFF

There are as yet only limited standard qualifications for applied psychologists. The nearest approach is election to membership in an applied section of the American Psychological Association and certification as a Diplomate in a specialized field by the American Board of Examiners in Professional Psychology. What is urgently needed is a professional training, in professional schools of psychology, that will fit psychologists to diagnose and treat behavior problems of psychological origin. This would be equivalent to the training of physicians in medical schools to diagnose and treat physical ailments. A professional degree from such a school of psychology, as differentiated from an academic degree, would be a guarantee of appropriate and adequate training to practice psychology. Some progress in this direction has been made through the program for training clinical psychologists sponsored by the Veteran's Administration and various Graduate Schools.

In the meantime, the staffs of centers often have on them psychologists with diverse combinations of academic education, clinical training, and occupational and social experience. In addition to evaluating these factors, the center director will give great weight to the capacity for quick perception of the subtle cues that lead to psychological insight. He will also require those personality characteristics which evoke in the client the deep confidence that leads to complete self-revelation. Successful clinical practice with adults requires a degree of sophistication and maturity probably seldom acquired before twenty-eight or thirty years of age. It seems to require a background rich in varied life experiences with many types of people. It probably requires marriage, or equivalent experiences in love and sex. It is yet uncertain to what extent a high degree of both imagination and empathy in the psychologist can take the place of first-hand experiences in giving a quick and sure understanding of the complex difficulties of adult clients.

The specialists needed on the staff of a general psychologic center are: adult clinical psychologists, vocational psychologists, child and adolescent psychologists, industrial psychologists, and experts in tests, measurements, and statistics. A function of the chief psychologist is to assign the clients to the members of the staff best fitted to deal with the essential problems of the client. Clients who have physical symptoms have almost always already consulted a physician before they come to the psychologic center. If they have not done so, they are invariably referred to a physician for physical examination before psychological treatment is undertaken.

THE CENTER SETTING

An adult who first enters a psychologic center may do so with trepidation. He may be hesitant, somewhat apprehensive, and rather tense. For he is troubled, the issues are important, the clinical procedures unfamiliar, and the outcome in doubt. The set-up of the center (its furniture, furnishings, and office layout, its clerical personnel and its routines) are therefore selected with a view to putting the client forthwith at ease. His reassurance is sought through a discreetly welcoming, friendly, and unhurried atmosphere.

For children there will be found a special waiting-room equipped with appropriate toys and books.

The consulting offices exclude distracting noises and give to the client a confident feeling of privacy. Neither telephone calls nor other intrusions are allowed to disturb the often difficult flow of the client's thoughts and feelings into verbal expression.

Many adults are sensitive about seeking the help of a psychologist, and are embarrassed at being seen by other clients when calling at the center. A significant point, however, is that generally clients who are making progress come to be matter-of-fact about having consulted a psychologist. If they are acquiring an objective approach to life's difficulties, and a problem-solving attitude, they usually come to feel that a psychologist is a specialist to be openly consulted whenever one has a persistent problem that he cannot solve alone, in the same way that one consults a physician when one has a physical ailment.

Centers educate their clients to feel that there is no stigma attached to their not being able to handle their own problems, since their emotions and their

frames of reference naturally interfere with clear thinking about their own difficulties.

LIBRARIES FOR STAFF AND FOR CLIENTS

A general consultation center is able to have a library far more extensive than can usually be afforded by a private practitioner, or than a specialized institution is likely to possess. There will be found a wider variety of books and technical periodicals, and more of them.

There is a difference of opinion concerning the desirability of combining directed reading with consultations. For those psychologists who find that specially selected books are an effective aid in changing attitudes and increasing relevant knowledge, a circulating library is a desirable feature of a center because of its convenience. Clients otherwise may have difficulty in obtaining recommended books.

ASSOCIATED SPECIALISTS IN GROUP PRACTICE

A certain client may come to a center because she is obsessed with the fear that an overwhelming impulse may cause her to injure her ten-months-old baby. A man of thirty comes because he deeply dislikes his occupation of salesman, but he does not know for what other vocation he may have the aptitudes, interests, and traits. A third client consults the center because her three-year-old daughter has the habit of striking and scratching any person who thwarts her desires in any way. An unusally experienced and gifted clinician can doubtless do, unaided, a fair job with problems as disparate as these, but generally the obsession will be most skillfully handled by a clinician who has had extensive experience with such adult personal problems. The vocational problem will require the knowledge of a psychologist who spends most of his time in the use of tests and the study of occupations. The violent child will need the understanding and the techniques of the specialist in child psychology.

But what of the man who consults because he is terrified by frequent nightmares of his wife falling bloodily apart when he takes her into his arms, whose energetic and ambitious wife craves a vocation but hesitates between several that appeal to her, and whose eleven-year-old boy has just developed enuresis? Such complexities are not rare. The three members of this family may be dealt with by a single psychologist, who in the general center, has at hand the counsel of colleagues who specialize in vocational psychology and in child psychology; or each of these three clients may be counseled by different specialists who can readily confer and integrate their clinical work. To the young psychologist especially, staff conferences on particularly subtle, complex, or difficult cases may often be more fruitful than dependence on his own more limited experience. In group practice the various specialties of applied psychology may be coordinated and integrated, or merely administered under one roof.

It is because of the complex, diversified, and yet interrelated nature of the problems of applied psychology that general psychologic centers have been established. Both from a theoretical point of view and from practical experience psychologists have been led to question the adequacy of isolated specialties, such as "family relation centers," "marriage clinics," "vocational bureaus," "child guidance clinics," "speech clinics," etc.

The problem for which the individual consults a psychologist may not be the essential difficulty from which he is suffering. For this reason he may go to the family relations center when his problem is essentially vocational, or vice versa, or to a child guidance clinic when his problem is marital. The various problems of the individual, of the family, and of industry, are too closely interrelated for it to be most effective to separate them and deal with them through independent institutions.

As an example, a case is, on the face of it, a matter of a wife's marital discontent due to the husband's extra-marital excursions. Clinical work reveals, however, that it is fundamentally a case of the vocational and personality maladjustment of a routine clerical worker who despises office work. The husband, after an extended testing program, is shown to have extremely high scholastic aptitudes, and very high intellectual and altruistic values. With a wife and two children to support he feels powerless to change his occupation, and hence feels frustrated, hopeless, trapped. His wife has become a heavy, habitual drinker. One of the children, partly due to the family tensions, has developed a social maladjustment to the school situation. It takes more psychological skills and resources than a "marriage clinic" is likely to possess to readjust these three lives, or even to recognize all of the problems involved.

A general psychologic center, on the contrary, brings to bear on the handling of any case, the pooled experience and the resources from all of the relevant specialties in applied psychology. The integration of the habits, attitudes, traits, interests, aptitudes, skills, and motivations of the personality on

the one hand, and the interrelationships between the various aspects of life, marital, parental, educational, occupational, social, etc., on the other hand, demand that the whole personality as it functions in its whole environment be taken into consideration to the extent that this is practicable.

This conception of specialty integration in psychological practice is not limited to the clinical field, but holds for other fields as well. Thus, the industrial department of a general psychological center calls on the vocational psychologist for testing and interviewing in employe selection, and for job analyses; it calls on the clinical psychologist for the readjustment of problem employes, and of interpersonal relationships in top management; the educational psychologist is called on for the development of in-training programs. The general psychologic center, by its nature, is equipped to serve these various functions.

NONPROFIT GROUP PRACTICES

The nonprofit policy means that the earnings, beyond the fixed salaries of the staff, are turned back into the extension and improvement of the services given, or into research, or into the education of the public in the uses of psychology.

Among the factors that have operated to bring into existence nonprofit group practice in general psychological institutions are the following:

1. The need to educate the public on a large scale, through many avenues of publicity, to utilize the services of applied psychology. Such publicity can be carried on by an institution not run for private profit with greater authority than by private practitioners or commercial psychological enterprises. The latter may be impelled by competitive necessities to exaggerated and misleading statements that discredit the profession.

2. The prospective economic waste, if psychologists were to follow physicians in establishing a multitude of one-man businesses, with unnecessarily multiplied overhead costs, and often underused facilities and equipment.

3. The need for specialization in applied psychology, with the concomitant need for frequent and easy interconsultation between the specialists.

4. The advantage that the pooled knowledge, experience, and skill which a staff, and staff conferences, have over the isolated practitioner.

5. The difficulty of the isolated practitioner in keeping up to date by buying all the books, subscribing to all the periodicals, and having on hand all the tests, that an institution can afford for its staff.

6. The dangers of intellectual isolation of the private psychologist who has inadequate opportunities for ready and frequent technical discussions with professional colleagues.

7. The possibility that the best interest of the public can be served when the psychologist has no immediate financial advantage in prolonging treatment or in persuading a prospect to become a client.

8. The fact that differing temperaments, personalities, interests, and life experiences may best fit a psychologist for one type of work rather than another. The quiet, passive temper of the clinical psychologist is perhaps often ill-adapted to the more active, assertive, and outgoing needs of the industrial psychologist. Yet their problems may be closely interrelated.

SERVICES AND FEES

It is commonly believed that free services to adults are not valued as highly as services that are paid for by the client, nor do they elicit the same degree of continuous cooperation.

Consultations are sometimes charged for by the hour, and sometimes by the month, or a three-months period of service. In some cases a few hourly consultations are all that are needed, or possible. In other cases, such as vocational counseling, a definite number of hours can usually be specified as sufficient. In many clinical cases, however, changes have to be brought about in attitudes, habits, traits, and motives which have been developing in the course of many years, and therefore consultations over a period of several months are necessary.

Some centers have found that a definite period, say of three months (with one or more consultations a week) and with a definite fee, brings better results than leaving the period of treatment indefinite. The client is not in a position to judge his progress at any given time. Some clients are impelled to discontinue because after a few consultations they are elated over their new understanding and feel that they are already completely readjusted and need no further help. Others may feel impelled to quit prematurely because the first few consultations have given depressing insights into their difficulties; they feel that the situation is hopeless and that they are not being helped by the psychologist. The clients must be influenced in both instances to continue long enough to bring about permanent changes in their ways of dealing with their difficulties. A three-months arrangement has this advan-

tage, and it also removes the question of hourly costs from coming up recurrently in the client's mind, since the matter is settled at the beginning of the service.

Fees depend in part on whether the institution is wholly self-supporting, or only partly so. Services and charges vary considerably from one institution to another, naturally. As an illustration, one clinic includes in its adult vocational counseling service three tests (measuring ten characteristics) and one and a half hour's consultation, for which the charge is fifteen dollars. Another institution includes a testing program taking about 12 hours to administer, measuring some 70 aptitudes, interests, and personality traits, followed by consultations totaling 4 hours. The fee for such a service is sixty dollars. Still another center includes in its vocational guidance program about the same amount of testing as the preceding one, but more hours of consultation, extending over a longer period of time, so that it becomes in effect a personality readjustment course in addition to vocational guidance. The charge for this is a hundred dollars.

These three vocational counseling services and fees illustrate the variety of practices found in psychological work.

Vocational counseling, marriage counseling, and nursing school testing are good examples of the kinds of work done in a general psychologic center and they are briefly discussed in the following sections.

VOCATIONAL COUNSELING

In considering the extensiveness of a test battery for vocational counseling, it is perhaps more useful to think in terms of the number of characteristics measured (particular aptitudes, interests, or personality traits) rather than to think in terms of the booklet or other material bearing a test name. The Maller-Glaser Interest-Values Inventory, for example, is a single test administratively considered, but psychologically it is a test of four characteristics (in this case, values).

The administration, scoring, and psychographing of tests is assigned to externes and students in training. It is a common practice to have all scoring checked by a second person.

The vocational interview explores particularly the client's successes and failures, his likes and dislikes in regard to studies, occupations, avocations, etc., and some of his personality traits and attitudes as they appear from his account of his life experiences. The vocational interview is also a discussion between the psychologist and the client concerning the significance of the pattern of his test scores in the light of his history, and, conversely, of the understanding which the test scores may give to the past history. The outcome is a program which is the joint product of the thinking of the client and of the psychologist. Such a program may contain plans for further training, for job investigation, etc. The plan may be a tentative one and require modification in the light of the client's further experiences in seeking to carry it out. A well-planned counseling service provides for this checking up of the progress of occupational adaptation.

Certain institutions give the test scores in writing to the client, believing that it is helpful for him to learn to think in terms of the psychological characteristics tested. Others very carefully refrain from doing so. The objection to giving out scores is that to the layman they mean something more definite and more permanent than the psychologist knows them to be. The psychologist knows that each score needs to be interpreted in terms of many factors, such as the validation of the test, its reliability, its standard error of measurement, etc., and in terms of the other test scores and in terms of the clinical history. The layman is not in a position to evaluate the significance or the relative importance of the various factors in this complex.

MARRIAGE COUNSELING

It is recognized that the marriage or sex problems of any individual are problems of his particular personality, of the personality of his spouse, and of the specific environmental factors affecting the marriage. Problems that are similar in appearance, therefore, may have to be approached and solved in widely differing ways because they have developed in different personalities and in different situations. Hence marriage counseling in the general psychologic center is not handled as a special and limited form of counseling, but as essentially clinical counseling, though with a special reference to the marital situation.

Test batteries disclosing compatibilities and incompatibilities are being increasingly used as aids in both marital and premarital counseling. Resemblances and differences between spouses may thus be brought out in a very illuminating manner. Too wide differences in intelligence, interests, values, and some personality traits may cause friction, unless they are understood and the individual adjusts to them. As an illustration, great differences in the

tendency to dominate may bring about serious frustrations or conflicts. Use is also being made of personality tests in such a way as to obtain measures of each spouse's understanding of the other.

Recently divorced persons, or those who have finally decided on divorce, also come to a psychologic center. The man or woman who is trying to adjust to the new conditions of life brought about by the disorganizing experience of divorce needs a self-knowledge more reliable than can be obtained by introspection. There may be continuous battles over children or money which prevent peace in the new life. There may be pressing problems of sex, cross-currents of love and resentment, the rankling hurt of wounded pride. For all these reasons, changes often need to be made in emotional attitudes, in ways of thinking, in friendships, and in social relations.

NURSING SCHOOL TESTING

Several psychologic centers have developed test batteries to assist superintendents of nursing schools in the selection of student nurses. These batteries measure certain aptitudes, abilities, interests, and personality traits that are significant for nurses. The testing is usually done in groups. The usual fee is five or six dollars, which is paid by the applicant. A psychograph is filled in for each testee, and is sent to the superintendent accompanied by an interpretation of each testee's pattern of scores. Some centers use centiles and others standard scores, but all report a classification of the candidate in such terms as "low," "average," "very high." Prior to the use of selection tests in nursing schools some schools have had to drop as many as a third of their students for lack of fitness. Such losses have been reduced to 5 per cent or less by means of a testing program.

EXTERNESHIP TRAINING

The psychological institution practicing throughout the whole range of applied psychology offers unusual opportunities for externeship training of prospective applied psychologists. For the beginning externe there is work in the administration of tests of all kinds, their scoring, and psychographing. For the more advanced student there is training in therapeutic work with children and adolescents, and with adults. Externes also get training by assisting in the industrial division of a psychologic center.

Since the general psychologic center always presents a wide variety of problems for research, externes get additional valuable training in research techniques.

IN CONCLUSION: VALUE OF SERVICE

The special value of the general psychologic center for the individual client is that all of his problems are studied in their interrelationships, and with the advantage of the pooled knowledge of associated specialists. The center has two benefits for these troubled individuals: first, the relief from his present distresses, through truer insights and changed meanings, and through the encouragement of motivations leading to remedial actions; second, preparation for handling future difficulties through the development of a problem-solving attitude, and through the acquisition of techniques of clear thinking and adjustive behavior.

The services of a general psychologic center can result in increased efficiency to institutions, business concerns, or social movements by helping them to make a better accounting of the aptitudes and the attitudes, the desires and the habits of their employees, their customers, and their publics.

READING REFERENCES

Achilles, Paul S., "The Consulting Services of the Psychological Corporation." *Journal of Consulting Psychology*, 1946, **10**, 120–126.

Bernreuter, Robert G., and Theodore A. Jackson, "Sales Personnel Selection and Related Services." *Journal of Consulting Psychology*, 1946, **10**, 127–130.

Cattell, R. B., *Crooked Personalities in Childhood and After*. New York: Appleton-Century-Crofts, Inc., 1938, Chap. 7, "The Child Guidance Clinic."

Flory, C. D., and J. E. Janney, "Psychological Services to Business Leaders." *Journal of Consulting Psychology*, 1946, **10**, 115–119.

Louttit, C. M., "Clinical Psychology," Chap. 15 in J. P. Guilford (ed.), *Fields of Psychology*. New York: D. Van Nostrand Company, Inc., 1940.

Mateer, Florence, *The Unstable Child*. New York: Appleton-Century-Crofts, Inc., 1924, Part I.

Otis, J. L., "The Personnel Research Institute of Western Reserve University." *Journal of Consulting Psychology*, 1946, **10**, 131–135.

CHAPTER XVIII

THE PROFESSIONAL PSYCHOLOGIST

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111. VOCATIONAL INFORMATION

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The profession of psychology offers many varied opportunities to young people possessing the required abilities, training, and experience. Specialists in the different fields of psychological practice supply their services to schools, businesses, industries, governments, and to individuals. In weighing the vocational opportunities in psychology, one should consider the types of work psychologists do, the number of people in the field, the required training, the future possibilities, and the organization of the profession.

VOCATIONAL OPPORTUNITIES

Job titles and duties in psychology are diversified. Shartle (1946) has listed a total of 103 titles of positions held by psychologists and also provided occupational descriptions of twenty-eight different types of jobs performed by the psychologist. Many psychological jobs can be found which are not filled by psychologists but by specialists in other professions who have psychological training, e.g., in civil service, rehabilitation, and traffic safety. Because of the scope of psychological application, a definition of the limits of professional practice in psychology is difficult, and an identification of all applied psychologists almost impossible. Nevertheless, an attempt will be made to arrive at an estimate of the number of applied psychologists in the country today and to describe the type of work they are doing.

In 1949, there were approximately 6,700 psychologists who belonged to the American Psychological Association, which is the national organization for psychologists. In 1939, of the 2,318 members of the American Psychological Association, 38 per cent could tentatively be identified as applied psychologists using this percentage, which without doubt underestimates, 2,546 applied psychologists belonged to the American Psychological Association in 1949. In 1939, of a sample of 1,124 applied psychologists, 41 per cent belonged to the American Psychological Association. Combining these figures, we arrive at the estimate that approximately 6,210 applied psychologists today are doing professional work in this country.

These applied psychologists may be classified as: clinical psychologists, educational psychologists, industrial psychologists, military psychologists, personnel psychologists, and consultants. Consulting psychologists are frequently private practitioners who work with individuals. When clinical psychologists work in prisons, hospitals, courts, and schools, they are designated by the institutional name, i.e., hospital psychologists, courts psychologists, etc. Psychologists working in schools are not always called school psychologists; they may carry the titles of educational psychologists, test specialists, personnel psychologists, counselors, guidance workers, or even visiting teachers.

POSITIONS IN INDUSTRY

In 1939, a survey of industrial psychologists made by Darley and Berdie revealed that of forty-three industrial psychologists indentified who did work which ranged from determining the most pleasing blends of whiskey to doing time-and-motion studies, not one of these workers carried the pay roll title of "psychologist." These men were employed in insurance companies, manufacturing plants, public utilities, department stores, and other places. In a later study, reported by Stagner (1946), a survey of thirty-six of the country's largest corporations revealed that 36 per cent of these companies have professionally trained psychologists on the staff and many of these workers carried the title of psychologist. In 1949, there were 216 members of the American Psychological Association listed as belonging to the division of industrial and business psychology. Many of them are not full-time industrial psychologists, and some teach in colleges and universities. Almost all of them are doing some work in industrial psychology, however, and many are doing full-time work in this field. There are

also approximately 30,000 personnel workers in the United States (Darley and Berdie, 1946). Many of these people are primarily psychologists.

The 1939 study showed that the median annual salary for industrial psychologists was $3,000, the highest of any class of psychologists included in that study. In 1948, the median starting salary for industrial psychologists with Ph.D.'s was estimated as about $4,000 (Canter). Psychologists in industry today are still the most highly paid psychologists, but no adequate figures can be obtained which show how much they make. The range of salaries extends from $2,000 to $25,000. Industry offers considerable opportunity for placement of professionally trained psychologists.

CLINICAL POSITIONS

Clinical psychologists are clearly recognized as a professional unit because of their specialized technique in individual practice. In 1914 (Wallin) nineteen "bonafide" psychological clinics in universities and colleges, normal schools, and medical schools provided many more than this number of positions for clinical psychology. In 1936 (Clark), 755 behavior clinics: 233 for children only and 437 for adults and children had no less than one psychologist to a clinic. Finch and Odoroff (1938) found 231 members of the American Psychological Association holding jobs as clinical psychologists. They were employed in schools for mental defectives, hospitals for nervous and mental diseases, general hospitals, juvenile courts, prisons, children's guidance clinics, mental hygiene clinics, state rehabilitation departments, and other private and public agencies. In 1949, there were 1,048 members of the American Psychological Association listed as belonging to the division of clinical psychology. This is the largest single division in the Association, and with the possible exception of teaching, more psychologists are doing clinical work than are engaged in any other type of psychological activity.

The median salary for a sample of 119 clinical psychologists who belonged to the American Psychological Association in 1948 was $4,500 (Wolfle). Studies by Doll (1934), Jameson (1938), and Louttit (1938) of approximately three hundred clinical psychologists showed that more than two thirds were employed in child guidance clinics at a median annual salary of approximately $2,000, with a range of salaries of from $1,200 to $6,500. Darley and Berdie (1946) showed two large sources of employment of clinical psychologists to be the 573 public and private hospitals for mental and nervous diseases, and the 136 prisons of the United States. State and federal hospital and prison directors were asked for the names of the employed psychologists. Eighty-six of the 159 responses from the hospitals showed one or more psychologists on the staff, and in all there were 171 hospital psychologists including psychological internes. All but sixteen of the hospitals employing psychologists were state institutions. More psychologists were working in state hospitals than in any other type of mental disease hospital in spite of the larger number of private hospitals.

Fifty-eight responses from prisons showed 41 employing psychologists. On prison staffs, 64 psychologists were employed. The median salary of both hospital and prison psychologists was equivalent to slightly more than $2,000. This was in 1940. Today the US Veterans Administration requires approximately 4,700 clinical and personnel psychologists. Opportunities in this program can be found by people who have master's degrees and doctor's degrees, and the range of salaries is from $2,000 to $8,000 a year. Because of the great need for clinical psychologists, the Veterans Administration has established a program in conjunction with colleges and universities throughout the country to train people who are interested in this type of work.

POSITIONS IN EDUCATION

Much overlapping exists between the psychologist's and the teacher's function in education. Many teachers of special classes, visiting teachers, and counselors are essentially educational psychologists, although they are classified otherwise on the payroll. In the American Psychological Association, in 1949, 393 members belonged to the division for educational psychology, 219 members belonged to the division for school psychologists, and 538 members belonged to the division for counseling and guidance. Many of the people in this latter group are engaged in government service, but most of them are working in schools, colleges, and universities. Many of the approximately 5,000 personnel workers in the schools of the country are school psychologists by training. The number of educational psychologists in the United States is between one and two thousand, if one includes only those who are adequately trained for the psychological work they are doing. In 1939, the median salary of 345 educational psychologists identified by Darley and Berdie was $2,900. Later, the range of salaries presented by Shartle extended from $1,500 to $5,500.

CONSULTANTS

Many applied psychologists serve as consultants at various times. They assist industries in establishing personnel programs, and work with private clients to improve speech, reading, and various behavior difficulties. Fewer than 200 consulting psychologists can be identified in the United States, if we include only those qualified workers devoting most or all of their time to independent practice. The membership of the consulting division of the American Psychological Association was 180 in 1949, but most of these persons are not primarily consulting psychologists, but rather make their services available to individuals and organizations when the need arises.

TRAINING OF PSYCHOLOGISTS

The professional tools of the psychologist consist of an enormous amount of psychological information, many specialized techniques, and a background of knowledge in the field of application. Results of many experiments must be understood in their application. The implications in psychological, biological, and sociological theory must be integrated into a background of usable information.

Preparation for psychological practice necessarily involves a long and arduous course of training. Over 80 per cent of all applied psychologists have at least a master's degree which requires one or more years of university training after graduation from college. It is practically impossible to obtain a job at the present time without this degree or its training equivalent. Employers often demand that the psychologists they hire have a doctor's degree in psychology from a recognized university, and that their training includes practical experience. If one is to obtain a doctor's degree, plus the experience which is so desirable, he must spend at least eight years in school after high school graduation.

FUNDAMENTALS

Suggestions regarding the training required in specialized fields are presented elsewhere in this book. Regardless of what the specialized field is to be, the psychologist must have at his command certain fundamental information and skills. Primarily he must be well versed in psychological sciences: general psychology, experimental psychology, psychology of learning, abnormal psychology, social psychology, and measurement. He must also be trained in the biological sciences. The amount of this training required is dependent upon the work to be performed. The psychologist working in hospitals will need more of medical courses than the industrial psychologist, but both will need an adequate understanding of the organism. The psychologist must understand social phenomena as they relate to individual adjustment. He must know something of history, economics, and sociology: the sources of institutions and group habits; how the government operates and how depressions, wars, and economic upheavals effect personality. Statistical methods have made possible the development of many new psychological instruments. The psychologist must have adequate training in statistics in order to understand the research of others and perform that necessary to his own work.

INTERNSHIP

After this background has been secured, the student must have experience in applying his knowledge before he can be an independent practitioner. Periods of a year or more can be spent in internships or in training jobs where the student works directly under the supervision of an experienced psychologist. Hospitals and prisons offer such opportunities for clinical psychologists; the program offered by the Veterans Administration having already been mentioned. Junior positions in schools, colleges, industry, and government have been created for the purpose of giving this needed training on the job.

LEGAL CERTIFICATION

During the past few years much progress has been made in legally defining the responsibilities and the qualifications of the applied psychologist. In 1946, nine states certified school psychologists: Connecticut, Indiana, Maine, Nebraska, New York, Ohio, Pennsylvania, Iowa, and New Jersey. Legislation concerning certification of school psychologists was pending in Wisconsin, West Virginia, and Utah. Eight other states certify psychologists, not necessarily school psychologists: Illinois, Kansas, Louisiana, Utah, Wisconsin, Wyoming, Virginia, and Kentucky. Requirements for certification vary from state to state. In Virginia, for instance, the requirements as stated by law are:

> A candidate must (1) be of good moral standing; (2) hold a doctorate in psychology, including graduate courses in clinical, experimental, and physiological psychology and statistics; (3) have five years of actual experience in clinical work, at least three years which have been in an approved mental hygiene unit, and at

least one year which has been under the direct supervision of the certified clinical psychologist and a certified psychiatrist; provided that the board may accept other academic training and experience of the equivalent of that described herein; (4) must be competent from the clinical standpoint as shown from passing such examinations, written or oral, or both, as the board deems necessary.

In the State of New York a four-year baccalaureate degree, 30 hours of graduate studies, and a major in psychology is necessary for certification. For permanent certification 12 graduate hours beyond the master's degree are necessary. Qualifications for the Pennsylvania certificate for school psychologist are as follows:

> Certification as a public school psychological examiner or public school psychologist requires graduation from an approved college or university, completion of one year of graduate work, and a completion of 36 or 66 semester hours of work respectively before or after graduation, distributed so as to meet certain state requirements for courses in general and medical psychology, psychometrics, and other related courses. Required clinical practice is also specified.

Connecticut and Ohio each certify psychologists at three professional levels. In Nebraska, a four-year baccalaureate degree, with a major in psychology obtained from a teacher education institution is necessary. In Maine, a four-year baccalaureate degree with a major in psychology is required. Certification in Indiana is based upon no specific pattern of courses, but rather upon an evaluation of individual training and experience.

This brief summary of state laws shows how necessary it is that the individual planning on going into applied psychology investigate requirements of the state in which he hopes to practice his profession.

SPECIALIZED DEVELOPMENTS

Many new fields offering vocational opportunities for psychologists have been appearing during the past few years.

SCHOOL PERSONNEL

Student guidance and remedial teaching at the high school and college levels are now considered necessary in every well rounded educational program. Experience has shown that problems arise in schools which are beyond the ability of the teacher and the faculty counselor who lack professional training in emotional adjustment, mental hygiene, reading difficulties, vocational and educational guidance, and speech defects. A specialist is required who has at his command both psychological techniques and information about occupations. He may be the school psychologist or vocational counselor, or both in combination. A few large universities now have as many as thirty psychologists devoting all their time to student personnel work. Psychologists are employed in these educational fields largely as personnel officers, not as psychological specialists.

PHYSICALLY HANDICAPPED

Another developing professional specialty offering opportunities for psychologists is the rehabilitation of the physically disabled. Rehabilitation programs were established by the government after World War I, and they were gradually adopted by the individual states. These programs included an analysis of job requirements and individual aptitudes for jobs, and psychologists have been employed as specialists for this work since the last half of the 1930's. At the present time one of the best organized fields is in the rehabilitation of tuberculosis patients, exemplified by the work being done at Saranac Lake, New York, and Glen Lake, Minnesota. Other programs are concerned with rehabilitation of the blind, victims of industrial accidents, and patients released from mental hospitals. It has been estimated by Dabelstein (1946), that 2,100 professionally trained workers can be utilized in this field by the state programs.

GOVERNMENT

The Federal Government offers many opportunities for psychologists, especially since the development of its social program during the 1930's. A score of years ago only two psychologists were in the government services. Today psychologists are in the Civil Service Commission, the War Department, the Navy Department, the Department of Interior, the Social Security Board, the Department of Labor, the Department of Agriculture, and elsewhere, where they are working as personnel technicians, psychological and vocational examiners, statisticians, educators, test builders, job analysts, and clinical psychologists. Not all are officially employed as psychologists, but most are actually doing work which is recognized as primarily psychological. Government service offers

one of the most rapidly expanding opportunities for psychologists.

MARKET RESEARCH

The field of market research has developed rapidly in the past decade. Many psychologists are devoting part or all of their time to this type of work. More than 100 psychologists associated with the Psychological Corporation, an organization founded to further the services of psychology, conduct consumer surveys on products, advertising effectiveness, sales appeal, and related public opinion. The field of market research has been and will most likely continue to be an expanding field.

These are only a few of developing fields offering opportunities to the professional psychologist. Others are to be found in private and public employment services, advertising research bureaus, programs of highway and traffic safety, public and private research agencies concerned with the measurement of opinions and attitudes, juvenile courts, Army and Navy programs, radio research institutes, aviation research, conservation, and crime detection bureaus. At least one professional psychologist is in each of these fields (1940), and in every instance a definite contribution is being made through the application of psychological technique. It is too early to predict which of these fields will expand to offer the most numerous opportunities, but there can be little doubt that if the work done so successfully in the past is continued, many more psychologists will be employed in all fields in the future.

PROFESSIONAL ORGANIZATION

One index of a profession's development is the extent to which professional organizations have appeared, and the influence they have upon professional qualifications, training, and the maintenance of standards. The growth of professional psychology is dependent upon the psychologist's awareness of these vocational problems and his willingness to concentrate upon their solution.

In 1917, the American Association of Clinical Psychologists was organized. In 1930, this organization was affiliated with the American Psychological Association as the clinical section. In 1938, a nominally independent organization, the American Association for Applied Psychology, was organized. Its membership requirements for the rank of associate were the doctor's degree and one year of supervised experience, and for the rank of fellow, the doctor's degree and four years of independent experience. The membership of the American Association for Applied Psychology was 609 in 1941. About 20 per cent of those holding psychological jobs in the United States possessed the qualifications required for membership. The great number of those who did not possess these qualifications indicated that many psychologists were inadequately trained for professional work according to leaders of the profession who established these standards.

The American Psychological Association was founded in 1892 by G. Stanley Hall, and in 1949 it had a membership of more than 6,700. Almost half of all engaged in psychological practice in 1941 were members of this organization. At present, no figures are available as to the percentage of applied psychologists belonging to this organization. At least 50 per cent of those holding professional jobs in psychology in 1940 belonged either to the American Psychological Association, or to a regional or local psychological society (Darley & Berdie, 1940). Others belonged to professional organizations in education, medicine, management, personnel work, and social work. Well over 10 per cent of all those engaged in psychological practice of some kind belonged to no professional society.

The American Psychological Association was reorganized in 1945, and at that time the American Association for Applied Psychology was incorporated into the American Psychological Association. The parent organization in 1949 consisted of seventeen divisions which represented differences in subject matter interest. Divisions which are of direct interest to applied psychologists are: evaluation and measurement, childhood and adolescence, clinical and abnormal psychology, consulting psychology, industrial and business psychology, educational psychology, school psychology, counseling and guidance psychology, psychology in public service, and military psychology. Over half of the divisions of the American Psychological Association are directly concerned with problems of interest to the applied psychologist.

There were twenty-two state associations of professional psychologists and several regional and city associations in 1948. Their standards vary and their total membership is probably not more than 2,000. These associations range in size from 10 to 400 members, and they hold meetings at intervals, varying from once a year to every other week. Some have as their purpose the exchange of ideas and the discussion of methods and principles; others the enactment of state laws and establishment of professional

standards. Thirteen of the state associations are affiliated with the American Psychological Association. Most of the centers in the United States about which applied psychologists are distributed have access to one or more of these associations.

Several other psychological organizations have considerable influence upon professional psychology, although their primary purpose is for the advancement of the science of psychology. The Psychometric Society and the Society for the Psychological Study of Social Issues, now affiliated with the American Psychological Association, have applied interests. Besides belonging to these psychological organizations, many applied psychologists belong to one or several of more than a dozen national organizations in related fields, and to many more local organizations. Almost half of all specialists in psychological work belong to a professional organization in related fields (Darley & Berdie, 1940).

The advent of applied psychology as a profession is dependent in great part upon the growth in size and prestige of these organizations. Only strong organizations can gain legal recognition, set professional standards, and establish satisfactory training requirements, all of which are indicative of a mature profession. As this is achieved, psychology becomes, as Cattell predicted in 1904, not only a science, but a profession.

SUMMARY

Applied psychology is a profession of possibly 9,000 specialists, but recognition of adequate training as represented by membership in professional psychological organizations limits those with recognized qualifications to not more than 5,000. Many of these workers are clinical or educational psychologists. Clinical psychologists are working in child and adult guidance clinics, general and psychiatric hospitals, orphanages, prisons and social agencies. Educational psychologists are employed in nursery schools, kindergartens, elementary schools, secondary schools, universities, and colleges. A few hundred people are working as industrial psychologists and consultants. Their work is varied and they are employed on many types of jobs. Salaries received by professional psychologists extend over a wide range. They are higher in general than most teachers receive and less than those received by most physicians, business executives, and other professional specialists. On the average, industrial psychologists receive the highest salaries and psychometrists employed in medical practice the lowest.

No rigid training requirements have been established for applied psychologists for the country as a whole, and only a few states have requirements for those performing psychological services. Professional organizations exercise some control, and are attempting to standardize requirements. The American Psychological Association has established the American Board of Examiners in Professional Psychology, which through the award of its diplomas to qualified specialists will help inform the public of individuals who are qualified to do psychological work. The training of professional psychologists requires five or more years of university work and includes a basic background in general, experimental, and applied psychology, social science, statistics, and biological science.

The future of the profession is promising. New techniques and methods are being developed for understanding human relations and society is recognizing that social progress is dependent upon the application of psychology. Many new fields are offering opportunities to psychologists: housing, rehabilitation, counseling, employment service, public health work, conservation, public opinion analysis, industrial, educational, civilian and military personnel and morale. Many jobs are combinations of psychology and other professions: engineers who are trained in psychology are needed in industry; social workers trained in psychology are necessary to social agencies. As methods, techniques and knowledge about psychology develop, the practice of psychology is becoming a profession.

READING REFERENCES

Berdie, R. F., "The Field of Applied Psychology." *Journal of Applied Psychology,* 1940, **24,** 553–575.

Darley, J. G., and R. F. Berdie, "The Fields of Applied Psychology." *Journal of Consulting Psychology,* 1940, **4,** 41–52.

——— and ———, *The Fields of Personnel Work.* Chicago: Science Research Associates, 1946.

Dudycha, G. J., "A Bibliography on Careers in Psychology, II." *American Psychologist,* 1948, **3,** 543–546.

Paterson, D. G., "Applied Psychology Comes of Age." *Journal of Consulting Psychology,* 1940, **4,** 1–9.

Shartle, C. L., "Occupations in Psychology." *American Psychologist,* 1946, **1,** 559–582.

112. CLINICAL PSYCHOLOGY: GUIDANCE AND TRAINING

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The training of any professional worker is a direct function of the professional duties that he is expected to assume. The duties of the clinical psychologist have been defined in two publications which appeared in 1946 and which symbolized the coming of age of clinical psychology as a profession. One of these was the publication in *The American Psychologist* by Shartle of occupational titles and job analyses in the field of clinical psychology. Shartle lists the general duties of the clinical psychologist as the interviewing of clients, the administration and interpretation of psychological tests, the preparation and review of case studies, the writing of diagnostic and prognostic reports, psychotherapy, and the supervision of psychological training in these duties. Add research to these functions and we arrive at what Shakow (1942) has called the clinical psychologist's triad of responsibilities—diagnosis, research, and therapy. Even more significant was the appearance of a report issued by a joint Committee on Clinical Psychology appointed by both the American Psychological Association and the American Psychiatric Association, which marks the formal acceptance by psychiatry of this triad of psychological functions and officially cements the growing cooperation and mutual understanding between psychiatry and clinical psychology.

The training of clinical psychologists must be pointed toward these three clinical functions of diagnosis, research, and therapy. We must keep in mind, however, that clinical psychology is a "profession," an "applied" psychology that works, not with the verbal abstractions and artificial laboratory conditions of academic psychology, but with living individuals in their daily milieu. Like the medical man, he must learn, not only the accumulated fact and theory of his science, but also its practical application. He must be technician as well as scholar. To acquire this ability to apply his knowledge, he must go beyond the classroom situation and serve a practical apprenticeship as does the medical man during his medical internship. The education of the clinical psychologist thus will have two phases—one a *didactic* phase in which he acquires within an academic setting the accumulated fact and theory of his subject, and the other a *practical* one in which he acquires the skill to apply this knowledge through practicum training by supervised participation in the actual work of a psychological clinic.

DIDACTIC TRAINING

Each of these responsibilities—diagnosis, research, therapy—breaks down into numerous specific functions all of which are firmly embedded in a broad complex of psychological knowledge. The actual course offering in any educational program therefore may bear little resemblance to this oversimplified tripartite classification. Thus, diagnosis may necessitate the taking of a case history, a clinical interview, and the administration and interpretation of psychological tests. None of these can proceed profitably unless the clinician has a thorough knowledge of the dynamics of personality. This in turn necessitates an understanding of the more elementary psychological and physiological processes basic to personality structure.

Familiarity with statistical techniques is necessary if the clinician is to comprehend both the potentialities and limitations of the standard testing instruments available for his use. Moreover, he must use such statistical techniques in continually improving the conventional tests and adapting them to special circumstances which may arise, as well as in the

development of new testing methods. He must supplement this knowledge with an understanding of experimental design and research methodology. In a constantly developing applied science, such as clinical psychology, research loses the luxury function it often assumes for the academician and becomes an essential part of the clinician's duties.

Too often, clinical education has stressed mere familiarity with specific clinical tools and has accentuated drill in their use, overlooking the broad theoretical background necessary for their understanding and intelligent application. A clinician who is thoroughly indoctrinated in the principles of test construction and interpretation rapidly can master a new testing technique. Without this basic understanding, he may misuse a test for years and never grasp its correct application. Sears (1946) calls attention to this difficulty in noting the preponderance of graduate courses in therapy and counseling over those in personality. He likens the teaching of these "technical" courses without previous training in personality dynamics and development to the situation which would prevail in medicine if medical students were taught to give drugs without any knowledge of the physiological, pharmacological, and pathological matrix within which the drugs operate.

This necessity for a broad background in the basic principles of psychology leads many clinicians to feel that the first part of the graduate program in the clinical field should resemble that offered to any graduate student in psychology. It should impart a knowledge of historical development and theoretical context with a thorough grasp of statistics and experimental psychology. Clinical courses *per se* would occupy that part of the graduate program usually given over to electives. Such specialization would increase as graduate study progressed.

We should avoid introducing an artificial distinction between the *pure* psychology of the academician and the *applied* psychology of the professional worker. As Krech (1946) has pointed out, any difference between the two is one of types of basic methodology with which these problems are attacked. Statistics is not limited to the problems of classical psychophysics, nor is experimental design confined to the problems of sensory processes.

The organization of such a program and the specific courses planned to carry it out must be expected to vary widely from university to university. Statistics may be taught under that course title or may be incorporated in psychometrics or in experimental psychology. The principles of therapy may be taught as such, and still be given a rightful place in any treatment of the theory and facts of learning. Witness the tremendous stimulation to experimental abnormal psychology in general, and psychoanalysis in particular, that resulted some years ago when Hull in his Yale seminar turned his systematic interest in learning toward the problems of psychoanalysis.

Many specific curricula for clinical psychology have been proposed. According to Shartle (1946), those courses most frequently listed as essential are tests and measurements, abnormal, clinical, experimental, general and theoretical, and statistics. Shakow's discussion (1942) remains outstanding. The present treatment will follow the report of the Subcommittee on Graduate Internship Training (prepared in 1945 under Shakow's chairmanship) for the Committees on Graduate and Professional Training of the American Psychological Association and the American Association for Applied Psychology.

UNDERGRADUATE TRAINING

The committee report suggests for the undergraduate program approximately 20 semester hours each of psychology and the biological (including physical) sciences, 12 hours of social science, 9 hours each of education and mathematics (including statistics), 6 hours of cultural history (philosophy, comparative literature, etc.), and a reading knowledge of French and German. The purpose is to give the student a fair acquaintance with psychology and the biological and social sciences, to provide a broad cultural and scientific base for his later clinical studies. It particularly avoids any of the professional specialization that will come later at the graduate level. In this respect, the committee's recommendations reflect the current trend in medical and engineering education where many educators are beginning to deplore the tendency to force professional courses back into the undergraduate program to the detriment of any broad cultural background which can best be inculcated before the student begins the specialization necessary in graduate study.

This suggested program must, of course, be considered extremely flexible. It will vary with academic opportunity and individual need. Student initiative and ability may compensate for some omissions. One educator may question the inclusion of the courses in education. Another may challenge the omission of art and literature. In general, however, clinicians will agree that the broad outline is sound.

GRADUATE TRAINING

The report envisages a 4-year graduate training program. The first year would be devoted to laying the necessary systematic foundation in psychology. It would include work in general psychology, developmental, dynamic, and experimental clinical, as well as work in the theory and practice of psychometrics, advanced quantitative methods, and the physiological sciences.

The second year would become increasingly specialized with the introduction of work in projective techniques, therapy, case study, vocational guidance, and some clinical medicine. To the purely didactic work would be added direct contact with patients in either a psychometric or an experimental setting. This could be obtained through practicum courses or through the development of externships in cooperating institutions.

The third year would be devoted to an internship in some institution such as a mental hospital or training school for the mentally deficient. This will be discussed below.

The fourth year would see the graduate student back at the university completing his doctoral dissertation and integrating the experiences acquired during the previous year within the framework of theoretical principles emphasized by the university. This last year would be marked by the introduction of cross-discipline seminars (with anthropology, sociology, psychiatry, etc.) and seminars on professional problems such as standards and ethics.

Again the committee's program must be considered as flexible and attainable under numerous different course organizations and titles. There might be more stress on general experimental psychology and research methodology during the first two years. Some of the practicum work of the second year might be displaced to the third year internship. One might ask whether the necessary introduction to clinical medicine might not better come in the practical context of the internship and be continued during the final graduate year. Clinical psychology is relatively new as a professional discipline, and formalized training programs are novel enough still to be considered as experimental. It would be a shame at this stage of its development to limit its future growth by too rigid and detailed a final formulation of its ideal educational program. Moreover, there are many incidental skills, such as the ability to write well, to express oneself well, and to work congenially and effectively with others Shartle (1946) which have not found a place in any formal training program.

PRACTICUM TRAINING

Since clinical psychology deals *with* people, since it *utilizes* knowledge about them, any didactic training program must be supplemented by a period of internship during which the student actually handles cases within a clinical environment. Such experience may be obtained in two general ways, through an *externship* or through an *internship*.

THE EXTERNSHIP

As the name implies, the student holding an externship does not reside within the institution but merely visits it for certain hours of service. There need be little difference between externship and internship, but in general the externship is more commonly found in the outpatient clinic than in an institution, the student's connection is seldom a full-time matter, and the opportunities for training and experience are more limited.

For these reasons the externship seems best adapted for the preliminary introduction of the student to actual clinical practice some time during his first two years of study, leaving his intensive practical training for the third year, full-time internship. Such part-time externship experience could be introduced during the first year and certainly should be during the second year. It may take the form of a practicum course carrying academic credit, or may be carried on outside the academic structure by the student as a volunteer activity. It might even take the form of a full-time summer's internship between the first and second years of training. In any case, some such preliminary practical training should be required before the internship.

THE INTERNSHIP

The internship usually consists of a year's residence in some institution with full-time duty in its psychological services. Since the internship program contributes to the facilities of the institution as well as to the training of the student, the student receives room and board and a small stipend for general living expenses. Such internships are of two types. They may be *fixed* or *rotating*. In the fixed internship, the student spends the entire year in a single institution; in the rotating internship he may successively serve in several different types of institutions. Both have their peculiar advantages. The

rotating internship offers a wider experience, but the problems of organization are numerous. A full discussion of the various opportunities for externship and internship training may be found in the *Journal of Consulting Psychology,* July-August, 1946. The best clinical opinion today seems agreed that maximum benefit from internship training will be obtained if it is incorporated as the third year of the 4-year training program.

Certain requirements must be filled by any institution offering internship. Not only should the institution offer a wide range of available clinical material, but the staff should be professionally adequate for those educational functions that are incorporated in the internship training program, and numerically adequate for a close supervision of the work of the interns. Without such close supervision, much of the training value of the internship is lost. While the trainee must not lose sight of his obligation to contribute to the work of the institution, the institution in turn must not overlook its educational obligations to the trainee.

As the work of both university and training institution become integrated, a balanced program will result with relegation of educational functions where they are best fulfilled. It may well result in an expansion of the clinical facilities of the university and an expansion of the educational facilities of the institution. Certainly, the present artificial separation between practicing clinical psychologists and their academic colleagues must be broken down if a broad, cooperative training program is to result. Institutional appointments as consultants for academic psychologists and academic lectureships for institutional psychologists will do much to bridge this gap.

POSTGRADUATE TRAINING

With the institution by the American Psychological Association of a board of certification for professional psychologists, and other measures intended to raise the level of both professional personnel and services, we can expect postgraduate training to become increasingly important. In the past, psychology has lagged behind other professions in providing facilities for such training. It seems to have proceeded on the assumption that the need for formal training ends with the conferring of the doctor's degree. Some postgraduate research fellowships are available, but seldom at a level attractive to the older, established psychologist. Our numerous professional associations at their meetings provide an opportunity for the exchange of ideas through papers and occasional symposia, but this does not fill the need for more formal refresher training.

A notable exception has been in the field of psychological testing, particularly the Rorschach, where brief courses are sometimes made available in new testing techniques. There is a need, however, for the expansion of such brief postgraduate courses and for the provision of clinical sessions at which actual case material can be presented and new methods demonstrated in practice. Postgraduate research fellowship facilities should be expanded and made more attractive to the older worker, and academic psychologists should be encouraged to spend sabbatical time in institutional internships. The institution of sabbatical leaves might also be valuable for practicing clinical psychologists, enabling them to return for a period of academic residence and study.

With increasing professional recognition and status comes increasing responsibility, a responsibility which must be shared by practicing clinician and educator alike. If clinical psychology is to realize its present promise, it must count, not only upon the professional dedication of the individual workers, but also upon the educational wisdom, the pedagogical energy, and the administrative honesty of those institutions devoted to their training.

READING REFERENCES

American Psychological Association, "Report by the Committee on Clinical Psychology (Laurence F. Shaffer, ch.)." *American Psychologist,* 1946, **1,** 520–522.

Louttit, C. M., "The Nature of Clinical Psychology." *Psychological Bulletin,* 1939, **36,** 361–389.

Shakow, D., et al., "Graduate Internship Training in Psychology. Report by the Subcommittee on Graduate Internship Training to the Committee on Graduate and Professional Training of the American Psychological Association and the American Association for Applied Psychology." *Journal of Consulting Psychology,* 1945, **9,** 243–266.

Shartle, C. L., "Occupations in Psychology." *American Psychologist,* 1946, **1,** 559–582.

113. VOCATIONAL PSYCHOLOGY: GUIDANCE AND TRAINING

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The psychologist who is training for an industrial career will find opportunities today that were not present twenty-five, fifteen, or even ten years ago. This situation is due partly to the fact that psychology is "coming of age," but it is also due in large measure to social forces at work during the past decade which have made it more necessary than before for industry to draw upon psychological methods.

Unemployment insurance is administered so that the premiums vary in proportion to labor turnover. Hence, there is financial gain to industry in hiring the man who will not have to be laid off, and psychology contributes improved selection procedures for this plan. Union contracts often contain a seniority clause. The effect of this is that the least efficient man on the force cannot always be laid off during slack times. Like the former, this situation can be remedied only by accuracy in hiring the right man at the outset. The demand for rapid hiring during an emergency furnishes an additional reason for using every available method to insure an adequate selection of employees. Also, merit rating of employees is essentially a psychological matter and one in which the psychologist can be of assistance to industrial management. These are only a few examples of the many ways in which psychologists are rendering a technical service to industry.

ACADEMIC TRAINING

An industrial psychologist must meet certain qualifications, in both training and general point of view. The training should not only cover key areas of psychology, but include certain related areas.

PSYCHOLOGICAL INSTRUCTION

The most important areas of psychology necessary in training psychologists for work in industry are statistics (which includes psychophysical methods and curve fitting in addition to standard statistical techniques), test construction, test administration, and experimental methods. Psychological methods are made to order for investigations of such problems as the accuracy of inspection for appearance, the relative difficulty of spotting different kinds of defects, individual differences among inspectors, and the relation between range of acceptability and accuracy of inspection. They are useful in the construction of scales for attitude surveys and labor audits. Curve fitting is necessary in many industrial investigations to present results in a form that is more intelligible to management than is possible when relationships are expressed only as simple correlation coefficients.

TEST CONSTRUCTION. Training in test construction is important because industry is beginning to use specially constructed tests for many purposes other than employee selection. For example, the use of multiple choice tests as an instructional device among supervisors has become standard procedure in certain large industrial organizations. Typical of such multiple choice tests are items quoted by Mapel (1941):

> If an employee is called out for work at 8:00 P.M. because of a vacancy in a position regularly filled by another employee, and he works until 12:00 P.M., he should be paid for: ( ) 4 hours work; ( ) 5 hours work; ( ) 6 hours work; ( ) 8 hours work.
>
> In Department A there are three shears; John Jones is first helper on No. 1 Shear, who due to sickness of the shearman, has acquired two weeks' experience as a shearman. Several months later a vacancy exists in the shearman's position. First chance at the vacancy should be given to: ( ) John Jones; ( ) the first helper with the longest departmental service; ( ) first helper with the greatest plant service; ( ) the first

helper with the longest service where combined factors are relatively equal.

Tests of this type are helpful in stimulating discussion in supervisory training conferences, and in teaching supervisors the basic practices under which the company operates.

TEST ADMINISTRATION. Test administration as practiced in industry or with adults should be emphasized in the training of an industrial psychologist. Testing of employees or applicants is different from testing school children or college students. An applicant for a job has a great deal at stake. When he realizes that his score on a test may determine whether or not he gets a job he is not apt to accept either the test or the psychologist with an all-in-the-day's-work attitude. Considerable skill in test administration is required to prevent the applicant who is not hired from leaving the plant without resentment toward the company. The rejected applicant must be made to understand that the persons hired have been selected because of particular qualifications for the jobs that are open, and that applicants not hired are persons who do not have a reasonable chance of succeeding on these particular jobs. This objective may be achieved by the proper use of tests, and a rejected applicant will not feel that he has been refused employment because of someone's prejudice against him.

EXPERIMENTAL METHOD. Problems constantly arise that call for the use of rigid experimental procedures by the industrial psychologist. How much light should there be and where should the lights be located for accurate inspection in Department A? What will be the effect of a rest period at 10:00 A. M. in Department B? How long should the rest period be? Will a significant increase in production result from the use of posture chairs in Department C? Are right- or left-handed persons most adapted to feeding the punch presses in Department D? Is 20/20 vision a necessary requirement for efficient production in Department E, or can persons with lower visual acuity safely and advantageously be placed upon this job? Questions such as these continually arise. They furnish an excellent opportunity for the psychologist to carry on conclusive experimentation if he is well trained in experimental methods.

RELATED TRAINING

Courses covering the training discussed above are ordinarily offered by departments of psychology in universities and colleges. But there are several other important areas of training necessary for the industrial psychologist which must usually be sought in related departments.

MOTION STUDY. The industrial psychologist should know enough about methods of time-and-motion study to realize the important part played by this work in modern scientific management. Time-and-motion study deals essentially with an analysis of basic action patterns. Psychologists in Great Britain long ago recognized this fact and industrial psychologists there frequently serve as time-study men. But in America the time-motion field was developed by industrial engineers and the necessary training is offered as an engineering subject. Psychologists should acquaint themselves with what is being done in this area because employee selection tests often cannot be properly evaluated except in terms of a time-motion analysis of the job which the applicant is expected to learn.

INDUSTRIAL RELATIONS. Company policies today are formulated in the light of legislation which affects both management and employees. Legislation affecting industry, such as the Taft-Hartley Act and the Fair Labor Standards Act, should be understood by the industrial psychologist because otherwise he may find himself embarrassed in attempting to do something that is not in conformity with laws. There is every indication that industry will be subjected to various types of government control in the future. It is important to be familiar with the legislation determining this control as it gives direction to psychological practice and research in industry.

PERSONNEL ADMINISTRATION. Employee selection tests, even when thoroughly accepted, constitute a minor part of the activities of a modern industrial employment office. Employment procedures are determined by potential sources of labor supply, the articulation of available applicants with the needs of the various producing departments, procedures for systematically keeping hundreds or even thousands of personnel records, and company policies involved in such matters as transfer, promotion, retirement and lay-offs. The psychologist will see his own opportunity for making a contribution in much better perspective if he has been systematically trained in the whole field of industrial personnel administration.

VOCATIONAL EDUCATION. The place of vocational education in public school systems is also a topic that should receive attention. Through federal and state subsidies every school system is now able to

offer vocational training in areas required by local industrial conditions. Often, however, there is not a sufficiently close relationship between the industries and the schools to enable industry to take full advantage of the training which the schools may offer. The industrial psychologist should be familiar with the legal and administrative features of the federal and state plan for vocational education. The tests which he may later give to applicants and employees will often reveal weaknesses in school training which the schools themselves are eager to remedy. The psychologist is in an extremely favorable position to help in the very important problem of matching the offerings of the local school system with the requirements of the local industrial situation, if he has been trained in the administration as well as the basic philosophy of vocational education.

The above mentioned areas of training are essentially academic. Most of them can be obtained in colleges and universities, though one will have to go outside departments of psychology if the training is to be really well rounded.

PROFESSIONAL ATTITUDE

The academic training above is not sufficient to insure success as a psychologist in industry. Certain other requirements are essential. These are more apt to be underemphasized, if not actually ignored, by the psychologist in training than are the academic phases of his education. These additional requirements might be thought of as point of view, as attitude, or as ordinary general adaptability. Whatever one chooses to name them, he should recognize that they are important—indeed vital—to industrial success.

TECHNICAL

The industrial psychologist is first of all a technician. This is a fact not always emphasized in the research atmosphere of a graduate school. When an industry hires a chemist, he is hired primarily to apply what is already known of the science of chemistry to the technological problems of the industry. Usually the carrying on of original research is of secondary importance. When a mechanical engineer is hired, his task is that of making an immediate application of principles already known in the field of engineering. Research, again, is of secondary importance, unless the employing organization happens to be a research foundation or division, and not a producing industrial plant. In exactly the same manner, when an industry employs a psychologist to work in a producing industrial plant, what is almost invariably desired is an immediate practical application of psychology to problems of selection, placement, training, and related areas.

Management is seldom interested in embarking upon a program of research that may, or may not, produce results after a period of months, or even years, have passed. If a psychologist has nothing more to offer than the fact that he is a good research man and can, if given plenty of time and plenty of assistance, develop something for the industry, he had better not seek employment with the company at all. On the other hand, if he is willing to begin as a technician, applying what he knows with reasonable rapidity and achieving results which, though not perfect, are at least an improvement over previous methods, he will build up an attitude of confidence on the part of management and supervision, and his work will be accepted.

This attitude of confidence is likely to result in an opportunity to do research. It is possible, and we might even add fortunate, that during his time as a technician he can modify to some extent the nature of his research interests so that when finally he is given an opportunity to do original research, he will not do exactly the same kind of thing he would have done if left free at the outset. The word "fortunate" is included in the preceding sentence because, just as a young doctor of Philosophy in chemistry or metallurgy would be very unlikely to inaugurate a research program of real importance to an industry so also a young doctor in psychology would be very unlikely to carry on industrial researches which would be of enduring significance to the company before he had an opportunity to assimilate the background of the organization. This assimilation can well take place while he is serving as a psychological technician, applying everything that he knows about psychology to the problems of his job.

PRODUCTION

A second characteristic of the successful industrial psychologist is that he must be "production minded." He is hired for the purpose of improving procedures relative to personnel, supervision and related problems, and he should realize that his work will be satisfactory to management if he achieves some improvement. If a certain change in method of hiring is such that the chances are 75 in 100 that improvement in production will result without sacrificing other values, then that change will ordinarily be

attempted, at least on a small scale, by management. It is not necessary to prove that the chances are 99 out of 100 of its being successful before management is willing to try the method. In short, it is only necessary that the odds be somewhat better than even that the method will work; it is not necessary that the improvement over previous methods be phenominal in amount or that the probability of success is unity.

Procedures for testing, training, and motivation that are so simple that their application may be overlooked are usually sufficient to give the psychologist a sound foothold in a personnel or industrial relations department. But to gain this foothold he must be able and willing to make these applications at once and in a way that clearly shows his financial value to the company.

SALESMAN

A third essential characteristic of the psychologist in industry is that he must be something of a salesman. There is no use in bemoaning this fact with the statement that "psychology is science and science does not have to be sold because it stands on its own merits." When psychology as science has become as thoroughly entrenched in modern business and industry as physics and chemistry now are, perhaps psychology will not have to be "sold." But in the present state of development a good many industries have yet to be convinced of the value of psychology, and if the psychologists themselves do not persuade industry of the value of psychology it is quite certain that nobody else will. This does not mean that the psychologist should be nothing but a salesman. It has already been emphasized that he must have a sound background of technical training, else, having made the sale, he will have nothing to deliver. But he needs to be able to explain in a simple, effective, and convincing manner what psychology is and what it can do.

COOPERATION

The industrial psychologist must be accepted by the men in the plant. Not long ago the superintendent of a steel mill hired a young assistant professor from a recognized university. The man's job was to make a certain technical installation. There was no question of the professor's general technical ability, nor of his competence to make the installation. But after the expert has been on the job for six weeks, complaints began to arise from every source. The men were dissatisfied because they felt the new plan was unfair. The foremen were disgruntled because they thought that no so-called expert from the outside could possibly know as much about the situation as they themselves did. Even the department heads felt that the superintendent had clearly made a mistake in bringing in a man from the outside who was attempting to change their habitual method of operating. The complaints were most bitter from a foreman of long experience and little education, whose reactions had a profound influence upon the feelings of the other supervisors as well as upon the workmen.

After six weeks the professor told the superintendent that he did not think he could do the job. He pointed out that the men would not cooperate and without this cooperation the installation was certain to fail. The superintendent pointed out to the professor that no one should expect the necessary cooperation to grow, like dandelions, without cultivation, and that he, the professor, needed to devote a little effort in developing the cooperation necessary for the successful operation of the plan. That afternoon, when the plant closed, the superintendent noticed the professor and the foreman, attired in old clothes and with cane fishing poles over their shoulders, walking out of the plant and toward a near-by lake. The superintendent smiled, for he realized that the problem was solved. Sure enough, from that day on, criticisms of the plan became less and less frequent until finally they disappeared. The professor had almost failed to learn, or at least to apply, the principle that technical skill is no substitute for personal acceptance when changes that affect men are concerned.

The psychologist and the industrial engineer are probably the only technicians in industry whose success is dependent upon the reactions of the employees. Their work is directly related to the emotional interests of the employees. Employee selection, promotion, and transfer, merit ratings, and wage-incentive systems must be understood and accepted by the employees. Employees and supervisors do not impartially evaluate such matters in a rational logical manner. Their acceptance or rejection is determined, rather, by their emotional reactions, and these reactions are largely the result of their feelings toward the man or men who are working on these subjects.

VOCATIONAL OPPORTUNITY

Few areas in which psychology may be applied today offer a more challenging field than industry. The psychologist who has sound basic training in psy-

chology; who has supplemented this training by study in related areas of scientific management; and who goes into industry as a technician, ready and willing to make an immediate contribution, will find a hearty welcome and a promising future.

READING REFERENCES

Burtt, H. E., *Principles of Employment Psychology* (rev. ed). New York: Harper & Brothers, 1942.

Jenkins, J. G., *Psychology in Business and Industry*. New York: John Wiley & Sons, Inc., 1935.

Maier, N. R. F., *Psychology in Industry*. Boston: Houghton Mifflin Company, 1946.

Tiffin, J., *Industrial Psychology* (2nd ed.). New York: Prentice-Hall, Inc., 1947.

Viteles, M. S., *Industrial Psychology*. New York: W. W. Norton & Company, Inc., 1932.

114. EDUCATIONAL PSYCHOLOGY: GUIDANCE AND TRAINING

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Educational psychologists are usually employed by two types of organizations: teacher education institutions and public school systems. The professional development required in preparation for success as an educational psychologist makes it possible for one to serve satisfactorily in still other organizations or even to carry on a private practice in an urban community, but the majority of American educational psychologists are teachers in colleges or universities.

The names of those members of the American Association for Applied Psychology given in the 1941 *Directory* of that organization as members of Section C (education) show that approximately 63 per cent were employed in teachers colleges, liberal arts colleges, or universities, 20 per cent were designated as employed in local, state, and national school systems, and about 5 per cent in juvenile research and child guidance institutes. The remaining 12 per cent were distributed in smaller numbers among research and testing bureaus, hospitals, correctional institutions, industrial concerns, private practice, publishing houses, libraries, and museums. While fewer than half of those who were teaching college courses in educational psychology were members of Section C in 1941, the distribution of members among types of employment is typical of that for educational psychologists in general.

It is estimated that at least three-fourths of the 6,735 members listed in the 1949 directory of the American Psychological Association are employed by colleges and universities. Of the 218 members that are listed under its Division of School Psychologists, however, only 22 per cent are so employed, while 60 per cent serve schools of elementary and secondary level.

Success as an educational psychologist requires an abiding interest in the problems of human learning, a sympathetic understanding of human beings and their personal difficulties, and a thorough professional preparation for helping individuals to analyze and solve problems of learning. Many persons are quite incapable of developing these qualifications. For example, a genuine interest in other people and a sympathetic desire to help them are not usually as amenable to development by classroom instruction as is an understanding of geography or of statistics. Anyone whose personality is such that other people tend to avoid discussing their personal problems with him has little chance of ever becoming highly successful as an educational psychologist. One who does not possess the academic aptitudes necessary for effectively carrying on at least two or three years of graduate study has an equally small chance of success.

If one has the necessary personality, aptitudes,

and interests, however, there are many different patterns of preparation by which one may acquire the qualifications of a successful educational psychologist. In general, one must become both a teacher and a psychologist before he can qualify as an educational psychologist. Whether he becomes a teacher first and then a psychologist, or reverses this sequence, or becomes a teacher and a psychologist simultaneously is of secondary importance. It is of vital importance, however, that the two professions ultimately be well integrated in the individual. His teaching must be influenced at every step by his psychology, and his psychology by his teaching experience.

The sequence of development outlined in this chapter is believed to be practical for most persons who may wish to become educational psychologists. The process of becoming a successful teacher includes much that is necessary in the process of becoming a psychologist. Furthermore, opportunities for employment are more numerous for a teacher than for a psychologist, which makes the teaching part of the preparation a safer initial step.

BECOMING A TEACHER

Educational psychology has made distinct changes in our understanding of the teacher's instructional task and consequently in our knowledge of how a teacher may prepare himself to perform that task. We have learned, for example, that whether a student learns or not depends upon what the student himself does and how he feels about what he has done, rather than upon what the teacher says or does. The teacher, if he knows the student thoroughly, can often stimulate and guide him to feel, to think, and to act in ways that will bring him some of the satisfactions of success and can thereby contribute to the student's learning. If a teacher and pupil do not know each other well, however, they must get acquainted in order that the teacher will not waste his efforts by asking the pupil to do things that are beyond his capacity, by trying to get him to respond to situations that he does not recognize, or by assuming that the student wishes to learn when he has little or no such desire. In other words, the teacher can make an educational diagnosis of his pupil and can guide him toward making a correct response to a given situation, but the student actually learns from his own efforts rather than from those of the teacher.

To become a good teacher, then, one must become skillful in the diagnosis, stimulation, and guidance of individuals. If one is to teach children of a given age group successfully, he must know a great deal about the normal interests, attitudes, abilities, and limitations of children of this age, in order that he may more fully understand the children for whose guidance and instruction he is to be responsible. In order to understand children of this age, he must know also the characteristics of earlier and of later ages and be reasonably familiar with the psychology of parents and adults.

Furthermore, if one is successfully to guide children into a well balanced adjustment with the world about them, one must have achieved that type of adjustment himself. Students welcome the opportunity to talk frankly with a teacher who is clearly recognized in the community as a citizen of character and importance. They are not likely to be inspired by or to emulate one who takes little part in life outside the classroom. It is therefore necessary for a would-be teacher to prepare himself to be an intelligent active citizen as well as a director of classroom activities. He must acquire a broad liberal education as well as professional training.

GENERAL EDUCATION

In a democratic society it is necessary that citizens learn to choose intelligently the leaders they are to follow in many different types of activity. The leader in religious worship will not usually be the same person as the leader in supplying groceries. The leader in repairing automobiles is not likely to be the best leader in treating diseases of the human body. The leader in one activity will be a follower in another, but everyone needs to know how to choose the best leaders for each important phase of living. The social studies, including history, political science, economics, and sociology, should be included in the teacher's general education as sources of critical standards for living in the complex modern world, and for the selection of leaders to be followed in life's affairs.

So much of modern living has been developed through science and invention that every intelligent citizen, and certainly every teacher, should become familiar with the basic attitudes and principles of scientific research. Regardless of the subject matter in which a prospective teacher plans to specialize, he should become familiar with scientific method and should learn something of its application in at least one field of science. If one has any idea of taking graduate work later and becoming an educational psychologist, biological science will prob-

ably prove to be more directly useful than physics, chemistry, or geology. Whatever the science, however, the most important thing is to master the methods by which the scientist approaches solutions of his problems.

Every prospective teacher should cultivate the ability to speak and to write effectively. Too many young people look upon their English composition classes as tiresome periods in which they worry over rules that have no value or importance in other situations. Language should be looked upon as a tool for the transmission of significant ideas, facts, feelings, and aspirations; and the study of composition should be treated as an opportunity for the development of greater skill in the use of this tool. The prospective teacher should be especially eager to develop the greatest possible facility in the use of spoken English, since this is almost certain to be the chief medium through which his teaching and guidance will be conducted.

Other elements that should be included in the general education of every teacher may be found in philosophy and literature. One cannot expect to hold the attention and confidence of students unless he has given serious thought to the fundamental aims and objectives for which men live. Whether one's students are very young or middle-aged, and regardless of the subject being taught, the question of why the subject should be studied will always be present, and the teacher's answer will usually be indicated by the procedures by which he imparts instruction. A fair acquaintance with the significant thoughts and aspirations of great writers and thinkers is furthermore a very important means of helping one to evaluate and to revise his own standards of value and effort.

In the undergraduate program of general education for high school teachers there should be included also at least one major teaching subject. One who plans to teach in the elementary schools need not specialize intensively in any one college subject, but one who plans to teach in a secondary school is required by legal enactments to choose the subject he is to teach and to take a considerable number of college courses in that subject. One cannot expect to be highly effective as a teacher of history, for example, unless he has learned a great deal more history than his pupils are expected to learn. Unfortunately a beginning teacher must usually accept employment at first in a relatively small high school and teach in two or three subject matter fields. In order to do this he must be certificated to teach in each of these fields, which means in most states that he must have taken while in college a number of courses in each field.

It is clear that no average person can in four college years become a subject matter specialist in two or three academic subjects, gain the backgrounds in social studies and science needed by all teachers, become well acquainted with the great literary and philosophical writings of the world, and develop also the psychological and pedagogical skills needed for success in teaching. Thorough preparation in all these areas can only be well begun in college. One who anticipates becoming an educational psychologist should probably prepare for teaching in the elementary schools or for teaching biological science and the social studies or English in the high schools, since the required undergraduate program of special subject preparation would involve taking only a few more courses in these fields than would be included in the general preparation of all teachers.

PROFESSIONAL EDUCATION

The technical or professional preparation of a teacher should include courses in psychology that will be highly pertinent and valuable in the later work of the educational psychologist. An authoritative report by a special committee of the educational section of the American Association for Applied Psychology (1942) gave special emphasis to the necessity of understanding child growth.

> The teacher should be familiar with present knowledge regarding growth in physique, intellect, interests, emotions, attitudes, character traits, social adjustments —and the influences affecting these developments. But this knowledge must not remain abstract and depersonalized. It must function to give sympathetic understanding of children as developing organisms in dynamic interaction with their environment, and show how such development may be most wisely and effectively guided and stimulated.

The same committee report, after discussing the psychology of learning and other fields of psychology with which the teacher should become thoroughly acquainted, summarizes its recommendations as follows:

> The Committee would therefore stress as essential parts of any teacher-preparation program the following: (*a*) an adequate treatment of psychological development —a treatment including the entire life span; (*b*) a broad

treatment of the psychology of learning, including the formation of appreciations, attitudes, concepts, ideals; (*c*) some consideration of methods of child study, individual differences, and methods of treatment of the individual child.

Specialized courses in abnormal psychology, in mental hygiene, in speech diagnosis and correction, and in the diagnosis and treatment of special difficulties in reading, arithmetic, and other school subjects would be very useful, particularly to an elementary school teacher, but they cannot in most cases be crowded into the undergraduate teacher education curriculum. Enough of these special topics should be included in the teacher's basic preparation in educational psychology, however, to make it clear that there are psychological techniques for dealing with such cases, and to enable the teacher to identify the most obvious cases for referral to the appropriate clinic or specialist. While a newly certificated teacher cannot hope to be an expert in all these special psychological fields, he should know where there are experts in them and he should be able to cooperate intelligently with these specialists.

The prospective teacher must also develop a guiding philosophy with regard to the fundamental purposes of public education and a clear vision of the main principles on which education must operate in a modern democratic society. In a world equipped with atomic power and biological weapons capable of destroying hundreds of thousands of persons in an instant, the fundamental purpose of all education must be the development of such cooperative attitudes, understandings, and habits as will lead men to live together peacefully and constructively and to cooperate effectively in solving their common problems. The general purposes of education must then develop into fairly detailed objectives to be achieved in the lives of students, and for each objective there must be developed clear ideas of how it may be achieved practically. The development of these ideas should occur in courses called by such names as the Philosophy of Education, Social Foundations of Public Education, Educational Evaluation and Measurements, Methods and Materials in the Teaching of Science, and Classroom Management. If these courses are well taught by inspiring instructors, and are illustrated adequately by repeated observations of children in classrooms, work rooms, and playgrounds, the ideas developed are likely to be realistic and valuable.

Before the young teacher is ready to accept a regular position, however, he should spend from a fourth to a half of a year in closely supervised teaching under a highly skilled critic teacher. It is in this practice teaching experience that the principles, methods, and materials previously developed are to be tested and either improved or discarded. If the critic teacher under whom one serves this apprenticeship is efficient and in full sympathy with the pedagogical ideas one has developed, the experience is likely to be extremely valuable, both as preparation for teaching and as a practical test of the validity of the educational psychology he has learned.

BECOMING A PSYCHOLOGIST

Graduate study of psychology may be undertaken without delay after completion of the four-year undergraduate curriculum, but in most instances the would-be educational psychologist will probably gain much more from his graduate study if it is not begun until he has had two or three years of practical experience as a teacher. One's first years as a teacher are unusually valuable, chiefly because he still has a strong curiosity and an open mind with regard to the instructional process. Readings and discussions in the graduate school will be far more significant to one who has had a few years of responsibility for instructing students than to one who has not had this responsibility.

GRADUATE COURSES

Not all of the graduate student's attention should be given to advanced courses in psychology. If his undergraduate program was too crowded to permit him to include courses in such fields as philosophy, ethics, logic, aesthetics, anthropology, zoology, economics, sociology, and political science, he should make serious efforts to build these fields into his general cultural background. Unfortunately the graduate school in the majority of universities will not allow graduate credit for the introductory or survey courses needed for this purpose, but acquaintance with such fields is highly important and should be gained either by attending college courses or by systematic reading under expert guidance. College instructors are usually glad to give such guidance to graduate students who are seriously trying to build up their backgrounds of understanding through reading.

The graduate student should first of all check carefully his basic orientation in psychological theory. He should become well acquainted with the different schools of psychological thought and learn some-

thing of how each of them has developed. Special attention should be given to the psychology of motivation, to the dynamics of normal and abnormal behavior, and to the factors entering into effective learning and conditioning. The measurement of individual differences, statistical analysis and treatment of data, and standard experimental methods should be learned thoroughly, not only from textbooks and the critical examination of published reports, but from carefully supervised personal participation in actual investigations having serious practical purposes. The choice of a graduate school in which to study psychology may well be determined by the degree to which the classroom work is integrated with extraclassroom activities in the practical application of psychological knowledge and skills.

One who is planning to become an educational psychologist should miss no opportunity to gain a clearer understanding of human development. This should include, not only the psychology of the normal child, adolescent, and adult, but the genetics of delinquency and social maladjustment, neuroses and psychoses, subnormal and gifted children, and special skills and disabilities. Here again, mere reading and discussion is not adequate. There should be constant illustration and experience in schools, clinics, and special institutions.

GRADUATE RESEARCH

One of the traditional requirements for earning a doctor's degree is the writing of a dissertation that is a "contribution to knowledge." In the field of psychology this work has usually involved the conduct of an original research. There is no question as to the contribution the conduct of such an investigation can usually make to the student's understanding of and appreciation for scientific research procedures. There is some doubt, however, as to whether all prospective educational psychologists should be required to conduct and report a strictly original investigation. In some cases it seems probable that the careful repetition of a crucial experiment with a different group of subjects would serve the purpose equally well. In other cases it is possible that the individual might better spend the year or more usually given to the research study in broadening his knowledge of psychological theory and practice, in serving an internship in a special clinic or institution, or in demonstrating his competence as an efficient teacher of psychology. The requirement that a research dissertation be presented is likely to continue, however, and if one wishes to secure promotion later in a college or university he may as well plan to meet the requirement.

One who plans to be an educational psychologist should, if possible, select for his thesis a problem in the field of human learning and conditioning. While there are real values to be gained in the study of animal learning, the problems of human learning are so much more immediate and complex that one ought to become familiar with them and to gain as much experience as possible in dealing effectively with them. Teaching a class of children to use the processes of long division, or teaching a group of adults to work together effectively in a community forum would not be greatly facilitated by experience in teaching a group of white rats to stop walking when they see a red light. Whether one's experiments should be with children, adolescents, or adults depends upon the age group with which he expects later to be chiefly concerned.

BECOMING AN EDUCATIONAL PSYCHOLOGIST

As was indicated in an earlier paragraph, one may have earned a bachelor's degree and a teaching certificate, plus an advanced degree in psychology, and still not be an educational psychologist. There must be such fusion of the two that the result is seen as a single efficiently productive personality. Scores of persons are trying to teach the facts and conclusions of printed textbooks on educational psychology in exactly the same manner that other instructors, who may never have read a single chapter on the learning process, are trying to teach history or economics: by assigned readings, followed by oral and written examinations. If one is actually acquainted with the experimental evidences on how human beings learn, he has little excuse for not modifying his own teaching efforts to conform with the practices that have been found most efficient.

Recognition as an educational psychologist comes as a result of quality in performance rather than as a result of mere quantity. It is possibly true that some members of the profession handicap their reputations by not publishing anything, but other individuals might be cited whose frequent published articles add little to their reputations as psychologists. If one is really doing a superior job of teaching students, he is likely to gain wide recognition, first among the students, then among his fellow faculty members, and ultimately among administrative officers. Similarly, if one is really rendering a vital service in an educational guidance

clinic or a child welfare institute, other people will soon recognize and report the facts. The educational psychologist who wishes to gain recognition in a given type of professional service should certainly try to secure employment in an institution and under an administrative head who is fully able to recognize efficient service and to reward it. Quality and value of the professional services rendered are the really important measures of an educational psychologist, rather than degrees earned or number of books and magazine articles published.

READING REFERENCES

American Council on Education, Commission on Teacher Education, *The Improvement of Teacher Education.* Washington, D.C.: The Council, 1946.

Baruch, D. W., "More Teacher Training Wanted." *Journal of Consulting Psychology,* 1944, **8,** 360–366.

Charters, W. W., and Douglas Waples, *The Commonwealth Teacher-Training Study.* Chicago: University of Chicago Press, 1929.

Elonen, A. S.; M. A. Onken; and D. Slight, "Training the Clinical Psychologist: Externships in Medical School Clinics." *American Psychologist,* 1946, **1,** 50–54.

Evenden, E. S., *Summary and Interpretation, National Survey of the Education of Teachers, Vol. VI.* Washington, D.C.: Government Printing Office, 1935.

Learned, William S.; William C. Bagley; et al., *The Professional Preparation of Teachers for American Public Schools.* New York: Carnegie Foundation for the Advancement of Teaching, 1920.

Long, L., "Professional Status and Training of Psychologists." *Journal of Consulting Psychology,* 1946, **10,** 104–108.

Moore, B. V. (gen. ch.), "Proposed Program of Professional Training in Clinical Psychology." *Journal of Consulting Psychology,* 1943, **7,** No. 1, 23–26.

Morrow, W. R., "The Development of Psychological Internship Training." *Journal of Consulting Psychology,* 1946, **10,** 165–183.

Pressey, S. L., "Time-Saving in Professional Training." *American Psychologist,* 1946, **1,** 324–329.

Stoke, S. M., "Undergraduate Training for Graduate Students of Psychology." *American Psychologist,* 1946, **1,** 113–115.

115. PROFESSIONAL ATTITUDES

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The authors of preceding sections, through their descriptions of psychological techniques, opportunities, standards, and obligations, have presented ample evidence that psychology has laid the foundations of a profession. The recent reorganization of the American Psychological Association reflects the growing professionalization of psychology. This change has been summarized by the Secretary: "The most important change is the change in the association's objectives. We have all recognized the obligation to advance psychology as a science; interest in the unsolved problems of human nature was the attraction that made us psychologists in the first place. But we are not only a group of inquiring psychologists; we are a professional group living in a complex society. We have now agreed that the APA's professional obligations to its members and the psychologist's obligations to society are inescapable. We have reorganized so that we may better meet those obligations" (Wolfle, 1946). It will be profitable for the reader to withdraw for a moment from this mass of detail and view psychology as an emerging profession. It is hoped that this overview will give new meaning and significance to psychological practice.

DEFINITION

Because the terms profession and professional have so many uses today, it is desirable to agree upon a

definition. The following has wide acceptance: A profession is a vocation in which a professed knowledge of some department of learning or science is used in its application to the affairs of others, or in the practice of an art founded upon it.

This definition implies several distinguishing characteristics of the professional person. He must (1) train in some department of learning or science, (2) function by applying this training, and (3) apply the training to the affairs of others, not to impersonal objects, nor even to his own personal welfare.

DISTINGUISHING CHARACTERISTICS

Certain features which will help to distinguish those vocations that are professional from those that are not (Carr-Saunders and Wilson, 1933) are: (1) a prolonged and specialized intellectual training resulting in a technique which enables the professional person to render a specialized service to the community; (2) a fixed remuneration either as salary or fee; (3) a responsibility for the technique manifested through a concern for the honor and competence of practitioners as a whole; and (4) associations for imposing tests of competence and enforcing observance of certain standards of conduct, which may be with the cooperation of the state. Certain professions have all of these features; others have some but not all, and it is difficult sometimes to distinguish the latter from nonprofessional vocations.

IS PSYCHOLOGY A PROFESSION?

It would appear that psychology is rapidly becoming a profession. However, there are pitfalls yet to be avoided and danger signals to be heeded in establishing psychology as professional practice. Also, guideposts need to be set up.

To imitate the older professions is not very satisfactory in mapping the path for a profession of psychology, partly because their standards and traditions were established in a different social *milieu* and partly because the practice of psychology differs in certain fundamental aspects from the practice of any other profession. In order to establish psychology as a profession it is necessary, (*a*) to determine whether psychology has developed a body of knowledge and skills that will enable it to render an important, specialized service to the community; (*b*) to determine whether current social and economic conditions produce problems in the solution of which psychology can be of service; and (*c*) to consider necessary standards for entrance into and practice of the profession. Before exploring these three areas it will be helpful if we attempt to distinguish between the professional psychologist and the psychological technician, between the scientist in psychology and the teacher of psychology, although many, if not most, psychologists function in more than one capacity.

TECHNICIAN. The technician in psychology is often confused with the professional psychologist. He is an expert in the use of such techniques as giving tests or analyzing the coverage of advertising. He does not have responsibility for the interpretation of his data nor for the ways in which the results of his work are employed. His results may be reported to a psychiatrist who integrates them with other results and makes his own report; his results may go to an officer of an industrial concern who uses them in such ways as will further the interests of the industry. The psychological technician is not, therefore, a professional psychologist.

SCIENTIST. The professional psychologist may also be differentiated from the scientific psychologist. The scientific psychologist gives first consideration to the advancement of psychological knowledge; the professional psychologist, to the welfare of human beings in all their various social relationships. When an engineer develops methods of testing tensile strength of metals, he is functioning as a scientist; when he uses these methods to aid in the construction of a bridge, he is functioning as a professional person. Similarly, when a psychologist examines the conditions producing fatigue or develops and standardizes a test of ability or achievement he functions as a scientist; when he studies an individual in order to give advice in the selection of an occupation or to increase efficiency he is functioning as a professional person. Furthermore, the scientific psychologist is often concerned with exploring and defining the field of psychology whereas the professional psychologist's concern is with interpreting and utilizing psychological knowledge in the solution of particular human problems.

TEACHER. We may also attempt to distinguish the professional psychologist from the teacher of psychology. In teaching, psychology may be thought of as a discipline comparable to physics, mathematics, and language. In the same way that study of language is supposed to help an individual improve his speech and his writing, so the study of psychology helps the individual to develop a better understanding of his own and others' mental and emotional life. The

teacher of psychology attempts to present his subject in such a way that his students will have at least an understanding of mental and emotional processes. He does not attempt, usually, to deal with the problems of individual students. When he does give advice based upon psychology he is functioning as a professional.

PROFESSIONAL KNOWLEDGE

Little needs to be added to preceding sections to indicate that psychology has contributed much valuable knowledge to the welfare of society and has developed many useful techniques for the solution of individual problems. Through the years, psychology has accumulated a considerable volume of knowledge through psychological experimentation, through the proposal and examination of psychological theories, and through appropriations from other fields, such as biology, physiology, statistics, chemistry, neurology, psychiatry, and sociology. Although there are conflicting schools of thought and many areas with insufficient information, enough organized knowledge is available to aid in the solution of human problems. In scarcely more than a generation great progress has been made in developing instruments of measuring general intelligence, special abilities, achievement, attitudes, personality and character development, and social maturity. Also, psychologists have become increasingly expert in using these instruments to understand problems of personal adjustment and to give educational and vocational guidance. It is apparent that psychology has gone a long way in providing techniques for professional practice.

SOCIAL NEED

The times in which we are now living produce many problems which must be reckoned with by the professional psychologist. Not only must he understand human behavior as a manifestation of innate tendencies and as an adjustment to environment but also have a philosophy or a set of principles which will guide him in his attempt to bring about improved adjustments. It is this philosophy or set of principles which we usually call his code of ethics. It is not derived from the study of psychology itself. It is derived from the social *mores* and from an interpretation of social trends. We should analyze, therefore, some of the ways in which the obligations of the professional psychologist may be derived from a consideration of his place in our social organization.

EFFECTS OF SOCIAL CHANGE

Many writers, during the last decade, have pointed out the unequal advance in material and social welfare: as it has been more commonly stated, there has been greater advance in the physical than in the social sciences. These trends in our civilization have had repercussions in the lives of individuals where concern over material welfare and where neglect of wholesome human relationships have produced mental problems of a serious nature. The corrective is a greater emphasis upon human values and human relationships. A saner and more wholesome outlook would result if we could make material welfare contribute to satisfactory human relationships instead of using human relationships to advance material welfare.

Much has been said about the passing of the frontier and its effect upon our economic life but the psychological effect of this change upon human beings has rarely been mentioned. In a very real sense the frontier afforded mental therapy to those who found themselves thwarted by the conditions of life in the earlier settlements. With the closing of the frontier, this group was obliged to find other ways of getting away from conditions which seemed oppressive.

Other problems of personal adjustment accompanied our increasing industrialization. Within our national history we have passed from a stage in which agricultural and pastoral occupations were most important to a stage where fewer people work upon the land and more work in industry, in the professions, and in the higher service occupations (Kotschnig, 1937). Occupational changes are more frequent, requiring greater adaptability on the part of the worker; inventions and changing fashions continually challenge our ways of living; there is greater demand for creative ability and skill. This increasing industrialization is doubly challenging to psychology. There is need for an increasing number of psychologists and at the same time the variety of problems with which they must deal is also increasing.

Not only is there a growing complexity in the personal lives of individuals but the business and government organizations of which individuals are members have become more complex. The individual employee has less opportunity for personal contact with his employer; the individual citizen with his government. When the owner of an industry was also the manager and when government

was mainly local, the individual was able through face-to-face contacts to understand the problems and purposes of the organizations of which he was a part. The average individual, on his own initiative, can no longer be depended upon to gain an adequate understanding of these organizations. Personnel and public relations directors in industry are endeavoring to create better understandings, to give the individual an opportunity to express himself, and to acquaint management with misunderstandings.

Although by different means, government agencies are also attempting to come in closer contact with the people. In all these efforts there is a great need for psychological training.

SOCIAL OBLIGATION OF PROFESSION

Because reorganizations of industry and government are continually taking place, the psychologist might well advise as to whether they offer adequate opportunity for individual differences, cooperation, and understanding. If organization were conceived in human terms, not only could greater efficiency be achieved, but many later difficulties of personal relationship would be avoided and there would be greater opportunity for personal development. It seems to be inevitable that as society becomes industrialized work becomes more specialized, thus demanding a smaller part of the individual's ability. His work is not always completely satisfying; he must develop a hobby and spend more time in recreation. Simple as the solution seems, it nevertheless often requires expert guidance because it involves a change in the habits of living. Thus, the obligation of the professional psychologist in industry and government is twofold: to help individuals make necessary adjustments to changes taking place around them, and to assist in bringing about the kind of organization in industry and government that will insure opportunity for the adequate expression of human qualities.

POLITICAL FOUNDATION OF PRACTICE

The psychologist in his professional practice must adhere to the political philosophy of the country in which he works. This point is particularly impressive when the contrast between a democratic and a totalitarian government is emphasized. Simply stated, in a democracy the welfare of every individual citizen is of paramount importance; in a totalitarian country, the welfare of the state is of first importance. In a democracy every institution, whether it be social, governmental, or industrial, must be evaluated in terms of its contribution to the welfare of individuals; in a totalitarian government, every individual is obliged to contribute his share toward the maintenance and growth of the state.

PROFESSIONAL OBLIGATION. The professional obligation of the psychologist is, thus, sharply differentiated in a democratic state and in a totalitarian state. In the first, the psychologist is under the obligation to help the individual develop to the fullest extent of his capacity and be given responsibility commensurate with this capacity. In the second, the psychologist must assist the government in conditioning the individual for exploitation by the state.

To many psychologists this idea that a democracy imposes certain obligations upon them is repugnant. Such psychologists would prefer to think of a democracy as being that form of government under which an individual is free to follow his own convictions and interests. While in many respects this is true, the argument here implies that if the psychologist is to be a true professional whose practice is sanctioned, possibly through licensing, by the society in which he lives, society has a right to indicate the nature of the professional practice and the professional psychologist is under obligation to respect this dictum from society. The state cannot afford to license people to practice psychology who would destroy the state which licenses them.

SOCIAL PLANNING

It is desirable to mention one other social development with which psychologists should be concerned as professional workers. It is that of social planning. In recent years we have seen the development of many planning boards or commissions in various units of national, state, county, and municipal government. In the activities of these boards too little attention has been given to the probable influence of this planning upon individuals. It is in estimating the influence of these plans upon individuals that the professional psychologist should be prepared to give considerable assistance. Sometimes it is suggested that marginal land be abandoned and bought by the state for parks or for reforestation. The psychologist needs to study the effect upon the inhabitants of these marginal lands and the effects upon communities where provision may be made for their resettlement. In such a project as that conducted under the Tennessee Valley Authority one needs to consider, not only the development of the physical resources of the area, but the welfare of the people living within the area as well.

There has been a tendency to interpret social trends from their economic, medical, or biological significance. Infrequently have these trends been given a psychological interpretation. We need to know the interrelationship between economic and social trends and the emotions, attitudes, and behavior of human beings. We may differ in our statement of social problems and in our interpretation of their meaning for professional psychologists but it does not seem that we could disagree that the work of a professional psychologist must grow out of social needs.

PROFESSIONAL STANDARDS

There are certain steps by which the psychological profession can carry out its obligation to society. These need to be carefully thought through but always by holding in mind that they are not ends in themselves but merely ways by which the psychologist may become more helpful in solving the problems of society. These steps may be classified as: (1) licensing and certification, (2) standards of training and practice, and (3) employment and salaries.

LICENSING

It was said that society had the right to set up the standards for licensing of professional workers. This point must be constantly borne in mind because there seems to be a tendency among at least a few professionals to think of licensing as a means by which an exclusive, favored group may be set up. In other words, licensing sometimes is looked upon as a means of achieving selfish ends. It is probably correct to say that, historically, licensing was thought of as a method by which the public was helped to distinguish between the sound and reliable practitioner and the impostor. The well trained and highly specialized psychologist wants such licensing, the better informed part of the public wants it, but unfortunately there is no general public interest in the licensing of psychologists. It would seem, therefore, that the first requisite is a more informed general public. If psychologists work for licensing legislation before there is a greater public demand for it, the purpose of licensing may be readily misunderstood. When such a general demand comes, psychologists, of course, should be the ones to advise concerning desirable standards, particularly standards of training. It should be recognized, however, that licensing legislation does not thereby make psychology a profession. Real estate brokers, barbers, beauticians, and others not accepted as professions are licensed in many states. The process of becoming a profession depends upon the development of the outlook which has been presented earlier in this section more than on the establishment of a licensing procedure. As a matter of fact, licensing in certain fields has failed to prevent malpractice or to insure a better service to the people, and sometimes it has become a shield behind which the unsocial practitioner seeks protection.

TRAINING

Standards of training and practice may have a function in common with licensing, namely, that of limiting the number admitted to the profession. The setting up of such limitations has several justifications. In the first place, it affords an opportunity for selection by which only those who have proper qualifications are permitted to function in society. In the second place, it protects those who are willing to take extensive and specialized training from frequent transfers to other occupations because of overcrowding.

Nature of Training. Much discussion of the nature of the training in professional psychology has been of a highly academic character. We must realize that psychology is more than an applied science—it is an art. The professional psychologist often must give advice and guidance where inadequate scientific work has been done or where his data are incomplete. He must depend upon his intuition. The soundness of his intuition will depend upon his tact, his penetration, his own personal adjustment, and the breadth of his experience. Even when there are adequate scientific background and data, the best use of them will depend upon personal characteristics. Because of these requirements it should be pointed out that (*a*) more emphasis needs to be given to the selection of candidates for training so that those candidates who have the necessary personal qualifications will be chosen; (*b*) the art aspect of professional practice needs emphasis in the training course; (*c*) instructors need to be chosen not only for their scholarship but for their professional success; and (*d*) completion of training should consist, not only of a reasonable distribution of credits in subject matter fields, but of approval by the faculty of the candidate's competence and of a recommendation from the member of the faculty under whom the practical work was done. Emphasis has been placed many times upon a broad intensive training in psychology itself by those who have made reports

on standards. The broader social implication of psychological research should also be emphasized and the findings integrated with those of such related fields as biology, neurology, economics, sociology, and government.

LENGTH OF TRAINING. A question is continually raised in one way or another as to how long the period of training for the professional psychologist should be. Is a master's degree adequate or should a doctor's degree be required or should we go further and require that there be an interneship in addition? The answer will apparently depend upon two factors: the amount of pertinent subject matter available, and the demands coming from the general public. The tendency today is for psychologists to say that a doctor's degree is essential. On the other hand, many psychological positions are being filled by people who have no more than a master's degree. As the character of the work changes and more responsibility is placed upon the psychologist, undoubtedly the period of training will be lengthened but extended training cannot be justified until the responsibility is sufficient to demand it.

THE FUTURE

Social trends would seem to indicate that we may expect an increasing demand for the professional psychologist in the future. Kotschnig's analysis (1937) of the three stages in our industrial development indicates that in the secondary and particularly in the tertiary stages there will be a great deal of occupational change and a consequent need for greater human adaptability. This and other accompanying changes will create the need for more employment in service occupations including professional service. Psychologists will probably share in this increasing demand for professional services to handle many of the human problems arising out of increased industrialization, e.g., those of adaptability.

There is an increased demand for psychologists largely in public schools, in government institutions, such as state schools and state hospitals, and in industry. The demand for the independent practitioner does not seem to have increased as rapidly as demands in these other areas. What may happen in the future is, of course, anybody's guess but it is the author's belief that the largest increase of psychological service will be connected with institutional life of some kind. This is not out of harmony with the trend toward socialization which is, for example, manifest in medicine.

This probable increase of professional psychologists is almost sure to be part of another trend which to many may not be welcome. Because of the rapid increase in white-collar jobs, including professional service, and the relative decrease in the number of manual workers, the general social status of professional persons is declining. However, it is likely that there will be greater stabilization of income than is found among professional people at the present time with higher minimum and lower maximum salaries. It is also reasonable to expect that the competition for professional jobs will be more intense.

It is easy to carry academic standards over into professional activities when a profession is emerging from a science as is true of psychological practice. The influences which are making psychology a profession are not alone the findings of psychology but also the changing social conditions under which we are living. If psychology is becoming a profession as we think it is and if individuals are to seek professional employment as psychologists, the psychologists must understand as far as possible the world in which they are to function. A few portions of our social and economic changes have been analyzed to show how the work of psychology as a profession is dependent upon them. The implication is clear that the services of the professional psychologist are increasingly needed to conserve our human resources in a period of increasing industrialization and of conflicting political ideologies.

READING REFERENCES

American Psychological Association, "Report of the Policy and Planning Board on the Certification of Professional Psychologists." *American Psychologist,* 1946, **1,** 41–42.

Carr-Saunders, A. M., and P. A. Wilson, *The Professions.* London: Oxford University Press, 1935.

Coxe, W. W., "Professional Problems of Applied Psychology." *Journal of Consulting Psychology,* 1940, **4,** 96–103.

Fryer, Douglas, "Applied and Professional Attitudes." *Journal of Consulting Psychology,* 1939, **3,** 1–10.

Kotschnig, W. M., *Unemployment in the Learned Professions; An International Study of Occupational and Educational Planning.* London: Oxford University Press, 1937.

Long, L., "Professional Status and Training of Psychologists." *Journal of Consulting Psychology,* 1946, **10,** 104–108.

Poffenberger, A. T., "Psychology: Academic and Professional." *Journal of Consulting Psychology,* 1945, **9,** 1–7.

Shakow, D., et al., "Graduate Internship Training in Psychology." *Journal of Consulting Psychology*, 1945, **9**, 243–266.

Vernon, W. H. D., "Some Professional Problems of the Consulting Psychologist." *Journal of Consulting Psychology*, 1946, **10**, 136–142.

Wolfle, D., "The Reorganized American Psychological Association." *American Psychologist*, 1946, **1**, 3–6.

A SELECTED AND CLASSIFIED BIBLIOGRAPHY IN APPLIED PSYCHOLOGY

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A. INDIVIDUAL AND GROUP LIVING

Albig, William, *Public Opinion.* New York: McGraw-Hill Book Company, Inc., 1939.

Alles, G A., and G. A. Fergen, "The Influence of Benzedrine on Work Decrement and Patellar Reflex." *American Journal of Physiology,* 1942, **136,** 392–400.

Allport, F. H., "The Influence of the Group upon Association and Thought." *Journal of Psychology,* 1920, III, 159–182.

———, "Polls and the Science of Public Opinion." *Public Opinion Quarterly,* 1940, **4,** 249–257.

Allport, G. W., "Attitudes." Chapter 17 in Carl Murchison (ed.), *Handbook of Social Psychology.* Worcester, Mass.: Clark University Press, 1935.

———, "Morale and Its Measurement." *Public Policy,* Harvard University, 1942, **3,** 3–17.

———, *Personality.* New York: Henry Holt & Company, Inc., 1937.

Andrieu, E., and G. Frechinos, "Contribution à l'étude des effets physiologiques du travail musculaire de longue durée." *Le Travail humain,* 1938, **6,** 11–37.

Arai, T., "Mental Fatigue." *Teachers College, Columbia University, Contributions to Education,* 1912, No. 54.

Arps, G. F., "Work with Knowledge of Results vs. Work without Knowledge of Results." *Psychological Monographs,* 1920, **28,** No. 3.

Bain, R. "Theory and Measurement of Attitudes and Opinions." *Psychological Bulletin,* 1930, **27,** 357–379.

Baker, K. H., "Pre-experimental Set in Distraction Experiments." *Journal of General Psychology,* 1937, **16,** 471–488.

Bakke, E. W., *The Unemployed Man.* New York: E. P. Dutton & Co., Inc., 1934.

Barmack, J. E., "Boredom and Other Factors in the Physiology of Mental Effort: An Exploratory Study." *Archives of Psychology,* 1937, No. 218.

———, "The Effect of 10 Mg. of Benzedrine Sulfate on the Otis Test Scores of College Students." *American Journal of Psychiatry,* 1940, **97,** 163–166.

———, "The Length of the Work Period and the Work Curve." *Journal of Experimental Psychology,* 1935, **25,** 109–115.

———, "Studies on the Psychophysiology of Boredom: Part I. The Effect of 15 Mgs. of Benzedrine Sulphate and 60 Mgs. of Ephedrine Hydrochloride on Blood Pressure, Report of Boredom, and Other Factors. Part II. The Effect of Lowered Room Temperature, and on Added Incentive on Blood Pressure, Report of Boredom, and Other Factors." *Journal of Experimental Psychology,* 1939, **25,** 634–642, 494–505.

———, "The Time of Administration and Some Effects of 2 Grs. of Alkaloid Caffein." *Journal of Experimental Psychology,* 1940, **27,** 690–698.

Bartlett, F. C., "Fatigue following Highly Skilled Work." *Proceedings of the Royal Society,* 1943, **B131,** 247–257.

———, *The Problem of Noise.* New York: The Macmillan Company, 1934.

Bartley, S. H., and E. Chute, *Fatigue and Impairment.* New York: McGraw-Hill Book Company, Inc., 1947.

——— and ———, "A Preliminary Clarification of the Concept of Fatigue." *Psychological Review,* 1945, **52,** 169–174.

Beebe-Center, J. G., "The Law of Affective Equilibrium." *American Journal of Psychology,* 1929, **41,** 54–69.

———, *Psychology of Pleasantness and Unpleasantness.* New York: D. Van Nostrand Company, Inc., 1932.

Benedict, F. G., and C. H. Benedict, "The Energy Re-

quired of Intense Mental Effort." *Science,* 1930, **71,** 567.

———, and B. S. Carpenter, "Influence of Muscular and Mental Work on Metabolism and the Efficiency of the Human Body as a Machine." *US Department of Agriculture Experiment Station Bulletin* No. 208, 1909.

Berrien, F. K., "The Effects of Noise." *Psychological Bulletin,* 1946, **43,** 141–161.

Biddle, W. W., "Propaganda and Education." *Teachers College, Columbia University, Contributions to Education,* 1932, No. 531.

Bills, A. G., "Blocking: A New Principle of Mental Fatigue." *American Journal of Psychology,* 1931, **43,** 230–245.

———, "Fatigue in Mental Work." *Physiological Review,* 1937, **17,** 435–453.

———, *General Experimental Psychology.* New York: Longmans, Green & Company, Inc., 1934.

———, "Influence of Muscular Tension on Efficiency of Mental Work." *American Journal of Psychology,* 1927, **38,** 227–251.

———, *The Psychology of Efficiency.* New York: Harper & Brothers, 1943.

Birch, H. G., "The Effect of Socially Disapproved Labeling upon a Well-structured Attitude." *Journal of Abnormal and Social Psychology,* 1945, **40,** 301–310.

Bird, Charles, *Social Psychology.* New York: Appleton-Century-Crofts, Inc., 1940.

Bitterman, M. E., "Fatigue Defined as Reduced Efficiency." *American Journal of Psychology,* 1944, **57,** 569–573.

Blakenship, A. B., "The Choice of Words in Poll Questions." *Sociology and Social Research,* 1940, **25,** 12–18.

———, "The Effect of the Interviewer upon the Responses in a Public Opinion Poll." *Journal of Consulting Psychology,* 1940, **4,** 134–136.

———, "The Influence of the Question Form upon the Response in a Public Opinion Poll." *Psychological Record,* 1940, **3,** 349–422.

Brainard, P. P., and R. T. Brainard, *Manual for the Brainard Occupational Preference Inventory.* New York: The Psychological Corporation, 1945.

Britt, S. H., *The Social Psychology of Modern Life* (rev. ed.). New York: Rinehart & Company, Inc., 1949.

Brown, J. D., and H. Baker, *Optimum Hours of Work in War Production.* Princeton, N. J.: Industrial Relations Section, Princeton University, 1942.

Brown, M., *Industrial Fatigue.* Chicago: Zurich Insurance Companies, 1942.

Brožek; H. Guetzkow; O. Mickelsen; and A. Keys, "Performance of Normal Young Men Maintained on Restricted Intakes of Vitamin B Complex." *Journal of Applied Psychology,* 1946, **30,** 359–379.

———; E. Simonson; and A. Keys, "A Work Test for Quantitative Study of Visual Performance and Fatigue." *Journal of Applied Psychology,* 1947, **31,** 519–532.

Bugelski, B. R., "The Consistency of Individual Differences in the Pattern of Work Decrement." *Journal of Experimental Psychology,* 1941, **28,** 326–339.

———, "The Relationship between Patterns of Ergograph Decrement and Decrement in Other Tasks." *Journal of Experimental Psychology,* 1941, **28,** 389–406.

Burnham, W. H., "The Optimum Humidity for Mental Work." *Pedagogical Seminary,* 1919, **26,** 311–329.

———, "The Optimum Temperature for Mental Work." *Pedagogical Seminary,* 1917, **24,** 53–71.

Burtt, H. E., *Applied Psychology.* New York: Prentice-Hall, Inc., 1948.

———, and D. R. Falkenburg, Jr., "The Influence of Majority and Expert Opinion on Religious Attitudes." *Journal of Social Psychology,* 1941, **14,** 269–278.

Campbell, A., "Measuring Public Attitudes." *Journal of Social Issues,* 1946, **2,** 1–69.

Cantril, H., *Gauging Public Opinion.* Princeton, N. J.: Princeton University Press, 1944.

———, "The Prediction of Social Events." *Journal of Abnormal and Social Psychology,* 1938, **33,** 364–389.

———, *Psychology of Social Movements.* New York: John Wiley & Sons, Inc., 1941.

———, "Public Opinion in Flux." *Annals of the American Academy of Political and Social Sciences,* 1942, **220,** 136–152.

Carl, G. P., and W. D. Turner, "The Effects of Benzedrine Sulfate (Amphetamine Sulfate) on Performance in a Comprehensive Psychometric Examination." *Journal of Psychology,* 1939, **8,** 165–216.

Carter, H., "Recent American Studies in Attitudes toward War; A Summary and Evaluation." *American Sociological Review,* 1945, **10,** 343–352.

Carter, H. D., "Twin Similarities in Occupational Interest." *Journal of Educational Psychology,* 1932, **23,** 641–655.

———, *Vocational Interests and Job Orientation.* Palo Alto, Calif.: Stanford University Press, 1944.

———; K. V. F. Taylor; L. B. Canning, "Vocational Choices and Interest Test Scores of High School Students." *Journal of Psychology,* 1941, **11,** 297–306.

Cason, H., "General Curves and Conditions of Feeling." *Journal of Applied Psychology,* 1931, **15,** 126–148.

Cattell, R. B., "The Description of Personality Principles and Findings in a Factor Analysis." *American Journal of Psychology,* 1945, **58,** 69–90.

Chapin, F. S., "An Experiment on the Social Effects of Good Housing." *American Sociological Review,* 1940, **5,** 868–879.

Chappell, M. N., *In the Name of Common Sense; Worry and Its Control.* New York: The Macmillan Company, 1938.

———, and H. F. Kramer, "Constipation—a Training Problem." *Medical Times,* 1937.

———; J. J. Stefano; J. S. Rogerson; and F. H. Pike, "The Value of Group Psychological Procedures in the Treatment of Peptic Ulcer." *American Journal of Digestive Diseases and Nutrition,* 1937, **3,** 813–817.

———, and T. I. Stevenson, "Group Psychological Training in Some Organic Conditions." *Mental Hygiene,* 1936, **20,** 588–597.

Charters, W. W., *The Stephens College Program for the Education of Women.* Columbia, Mo.: Stephens College, 1933.

Chase, Stuart, *The Tyranny of Words.* New York: Harcourt, Brace & Company, Inc., 1938.

Child, I. L., "Morale: A Bibliographical Review." *Psychological Bulletin,* 1941, **38,** 393–420.

Childs, Harwood L., and John B. Whitton (eds.), *Propaganda by Short Wave.* Princeton, N. J.: Princeton University Press, 1942.

Clark, R. E., et al., *The Effects of Sleep Loss on Performance of a Complex Task.* Washington, D. C.: US Department of Commerce, 1946.

Conrad, H. S., "Some Principles of Attitude Measurement; A Reply to Opinion Attitude Methodology," *Psychological Bulletin,* 1946, **43,** 570–589.

Cook, S. W., and A. C. Welsh, "Methods of Measuring the Practical Effects of Polls of Public Opinion." *Journal of Applied Psychology,* 1940, **24,** 441–454.

Courtenay, M. E., "Persistence of Leadership." *School Review,* 1938, **46,** 97–107.

Cowley, W. H., "The Trait of Face-to-Face Leaders." *Journal of Abnormal and Social Psychology,* 1931, **26,** 304–313.

Crawley, S. L., "An Experimental Investigation of Recovery from Work." *Archives of Psychology,* 1926, No. 85.

Crespi, L. P., "Opinion-Attitude Methodology and the Polls; A Rejoinder." *Psychological Bulletin,* 1946, **43,** 562–569.

Crouch, C. L., "The Relation between Illumination and Vision." *Illuminating Engineering,* 1945, **40,** 747–784.

Darley, J. G., *Clinical Aspects and Interpretation of the Strong Vocational Interest Blank.* New York: The Psychological Corporation, 1941.

———, "A Preliminary Study of Relations between Attitude, Adjustment, and Vocational Interests Tests." *Journal of Educational Psychology,* 1938, **29,** 467–473.

Davis, A. H., "Some Aspects of the Problem of Noise." *Occupational Psychology,* 1938, **12,** 43–55.

Davis, R. C., "Patterns of Muscular Activity during Mental Work and Their Constancy." *Journal of Experimental Psychology,* 1939, **24,** 451–465.

Day, D., "Methods in Attitude Research." *American Sociological Review,* 1940, **5,** 395–410.

Diserens, C. M., and J. Vaughn, "The Experimental Psychology of Motivation." *Psychological Bulletin,* 1931, **28,** 15–65.

Dodge, R., and F. G. Benedict, *Psychological Effects of Alcohol.* Washington, D. C.: Carnegie Institute, 1915.

Dollard, J., et al., *Frustration and Aggression.* New Haven, Conn.: Yale University Press, 1939.

Doob, W., *Propaganda; Its Psychology and Technique.* New York: Henry Holt & Company, Inc., 1935.

———, *Public Opinion and Propaganda.* New York: Henry Holt & Company, Inc., 1948.

———, "Some Factors Determining Change in Attitude." *Journal of Abnormal and Social Psychology,* 1940, **35,** 549–565.

Dowd, C. E., "A Study of the Consistency of Rate of Work." *Archives of Psychology,* 1926, No. 84.

Dunham, H. W., "Topical Summaries of Current Literature: Social Attitudes." *American Journal of Sociology,* 1940, **46,** 344–375.

Dunlap, K., "The Role of Eye-Muscles and Mouth-Muscles in the Expression of the Emotions." *Genetic Psychology Monographs,* 1927, **2,** 196–233.

Eaton, J. W., "Experiments in Testing for Leadership." *American Journal of Sociology,* 1947, **52,** 523–535.

———, *Exploring Tomorrow's Agriculture.* New York: Harper & Brothers, 1943.

Eaton, M. T., "The Effect of Praise, Reproof and Exercise upon Muscular Steadiness." *Journal of Experimental Psychology,* 1933, **2,** 44–59.

Edwards, A. L., "Four Dimensions in Political Stereotypes." *Journal of Abnormal and Social Psychology,* 1940, **35,** 566–572.

Edwards, A. S., "The Effect of Smoking on Tremor." *Journal of Applied Psychology,* 1948, **32,** 150–158.

———, "Effects of the Loss of One Hundred Hours of Sleep." *American Journal of Psychology,* 1941, **54,** 80–91.

Eichna, L. W.; W. F. Ashe; W. B. Bean; and N. Nelson, "Performance in Relation to Environmental Temperature; Reaction of Normal Young Men to Hot, Humid (Simulated Jungle) Environment." *Johns Hopkins Hospital Bulletin,* 1945, **76,** 25–58.

———; ———; ———; and W. B. Shelley, "The Upper Limits of Environmental Heat and Humidity Tolerated by Acclimatized, Normal, Young Men Working in Hot Environments." Fort Knox, Ken.: Armored Medical Research Laboratory, File No. 727-2, Project Nos. 2-11, 2-12, 2-17, October 2, 1944.

Eisenberg, Philip, and Howard Chinn, "Tonal Range and Sound Intensity Preferences of Broadcast Listeners." *Proceedings of the Institute for Radio Engineer,* September, 1945, pp. 571–581.

English, E., "A Study of the Readability of Four Newspaper Headline Types." *Journalism Quarterly,* 1944, **21,** 217–229.

Farago, L., "The Morale Offensive against the United States." *Journal of Educational Sociology,* 1941, **15,** 229–241.

———, and L. F. Gittler (eds.), *German Psychological Warfare; Survey and Bibliography.* New York: Committee for National Morale, 1941.

Ferree, E. E., and G. Rand, "Visibility of Objects As Affected by Color and Composition of Light." *Personnel Journal,* 1934, **9,** 475–492; **10,** 108–124.

Finkelstein, N.; E. B. Alpern; and W. H. Gantt, "Amphetamine (Benzedrine) Sulfate upon Higher Nervous Activity Compared with Alcohol (Human Experiments)." *Johns Hopkins Hospital Bulletin*, 1945, **76**, 61–74.

Finnegan, J. K.; P. S. Larson; and H. B. Haag, "The Role of Nicotine in the Cigarette Habit." *Science*, 1945, **102**, 95–96.

Fisher, V. E., and J. V. Hanna, *The Dissatisfied Worker*. New York: The Macmillan Company, 1931.

———, and R. I. Watson, "An Inventory of Affective Tolerance." *Journal of Psychology*, 1941, **12**, 149–157.

Flory, C. D., and J. Gilbert, "The Effects of Benzedrine Sulphate and Caffeine Citrate on the Efficiency of College Students." *Journal of Applied Psychology*, 1943, **27**, 121–134.

Foltz, E., et al., "The Use of Double Work Periods in the Study of Fatigue and the Influence of Caffeine on Recovery." *American Journal of Physiology*, 1942, **136**, 79–86.

Frank, J. D., "Individual Differences in Certain Aspects of the Level of Aspiration." *American Journal of Psychology*, 1935, **47**, 119–128.

———, "The Influence of the Level of Performance in One Task on the Level of Aspiration in Another." *Journal of Experimental Psychology*, 1935, **18**, 159–176.

Freeman, G. L., "Changes in Tension Pattern and Total Energy Expenditure in Adaptation to Distracting Stimuli." *American Journal of Psychology*, 1939, **52**, 354–360.

———, "Effect of Muscular Tension upon Performance." *American Journal of Psychology*, 1933, **45**, 17–52.

———, "The Spread of Neuro-Muscular Activity in Mental Work." *Journal of General Psychology*, 1931, **5**, 479–494.

Friedman, Bertha B., "Foundations of the Measurement of Values; The Methodology of Location and Quantification," *Teachers College, Columbia University, Contributions to Education*, 1946, No. 914.

Friend, J. G., and E. A. Haggard, "Personality Factors in Occupational Adjustment." *American Psychologist*, 1946, **1**, 242 (abs.).

Fryer, Douglas H., "Individual Mental Efficiency," Chap. 16, in J. P. Guilford (ed.), *Fields of Psychology*. New York: D. Van Nostrand Company, Inc., 1940.

———, *The Measurement of Interests in Relation to Human Adjustment*. New York: Henry Holt & Company, Inc., 1931.

———, "Motivation Effects of Auditory Timing upon Repetitive Mental Work." *British Journal of Psychology*, 1934, **25**, 140–169.

———, "Specific Conscious Intent and Its Correlates in Performance." *British Journal of Psychology*, 1937, **27**, 364–393.

———, *Vocational Self Guidance*. Philadelphia, Pa.: J. B. Lippincott Company, 1925.

———, and O. Heister, "Why Men Work." *The Wharton Review*, 1936, IX, 7–8; 21–22.

Gallup, G., *A Guide to Public Opinion Polls*. Princeton, N. J.: Princeton University Press, 1944.

———, "Question Wording in Public Opinion Polls." *Sociometry*, 1941, **4**, 259–268.

———, and S. F. Rae, "Is There a Band-Wagon Effect?" *Public Opinion Quarterly*, 1940, **4**, 244–249.

——— and ———, *The Pulse of Democracy; The Public-Opinion Poll and How It Works*. New York: Simon & Schuster, Inc., 1940.

Gardner, J. W., "The Relation of Certain Personality Variables to the Level of Aspiration." *Journal of Psychology*, 1940, **9**, 191–206.

Garrett, H. E., and M. R. Schneck, *Psychological Tests, Methods and Results*. New York: Harper & Brothers, 1933.

Gates, A. I., and G. A. Taylor, "An Experimental Study of the Nature of Improvement Resulting from Practice in a Motor Function." *Journal of Educational Psychology*, 1926, **17**, 226–236.

Gobey, J. T., "A Study of the Similarity of Work Decrement Curves." *Journal of Experimental Psychology*, 1941, **28**, 217–232.

Goddard, V. R., and J. G. Voss, "The Immediate Effect of Cigarette Smoking upon Basal Metabolic Rates of University Men and Women." *Journal of Laboratory and Clinical Medicine*, 1942, **27**, 787–791.

Gollomb, Joseph, *Armies of Spies*. New York: The Macmillan Company, 1941.

Gould, R., "Factors Underlying Expressed Level of Aspiration." *Journal of Psychology*, 1938, **6**, 265–279.

Graf, O., "Die Arbeitspause in Thorie und Praxis." *Psychologische Arbeiten*, 1928, **9**, 563–685.

———, "Über Lohnendste Arbeitspausen bei geistiger Arbeit." *Psychologische Arbeiten*, 1922, **7**, 548–611.

Graves, P. F., "Morale in Public Forestry Organization in the United States." *Bulletin New York State College of Forestry*, Technical Publication No. 53, 1941.

Gray, J. S., *Psychology of Human Affairs*. New York: McGraw-Hill Book Company, Inc., 1946.

———, et al., *Psychology in Use*. New York: American Book Company, 1941.

Graybiel, A.; O. Horwitz; and D. Gates, "The Problem of Fatigue among Student Pilots at the Naval Air Training Center, Pensacola, Florida." *Journal of Aviation Medicine*, 1944, **15**, 9–25.

Guilford, J. P., "The Affective Value of Color as a Function of Hue, Tint, and Chroma." *Journal of Experimental Psychology*, 1934, **17**, 342–370.

———, "There Is System in Color Preferences." *Journal of the Optical Society of America*, 1940, **30**, 455–459.

——— (ed.), *Fields of Psychology*. New York: D. Van Nostrand Company, Inc., 1940.

Guttman, L., "The Cornell Technique for Scale and Intensity Analysis." *Educational and Psychological Measurement*, 1947, **7**, 247–281.

Haggard, H. W., and L. A. Greenberg, *Diet and Physical Efficiency*. New Haven, Conn.: Yale University Press, 1935.

——— and ———, "The Effects of Cigarette Smoking upon the Blood Sugar." *Science*, 1934, **79**, 165–166.

———, and E. M. Jellinek, *Alcohol Explored*. New York: Doubleday & Company, Inc., 1942.

Hahn, M. E., and C. T. Williams, "The Measured Interests of Marine Corps Women Reservists." *Journal of Applied Psychology*, 1945, **29**, 198–211.

Hall, G. S., *Morale, the Supreme Standard of Life and Conduct*. New York: Appleton-Century-Crofts, Inc., 1920.

Hall, O. M., "Attitudes and Unemployment: Comparison of the Opinions and Attitudes of Employed and Unemployed Men." *Archives of Psychology*, 1934, No. 165.

Hansen, M. H., and P. M. Hauser, "Area Sampling—Some Principles of Sample Design." *Public Opinion Quarterly*, 1945, **9**, 183–193.

Harding, John, "The Measurement of Civilian Morale," Chap. 5 in Hadley Cantril, *Gauging Public Opinion*. Princeton, N. J.: Princeton University Press, 1944.

———, "A Scale for Measuring Civilian Morale." *Journal of Psychology*, 1941, **12**, 101–110; **15**, 221–223.

Hardy, LeGrand H., "The Eye As Affected by Illumination." *Transactions of the Illuminating Engineering Society*, 1934, **29**, 364, 384.

Harmon, F. S., "The Effects of Noise upon Certain Psychological and Physiological Processes." *Archives of Psychology*, 1933, No. 147.

Harrell, T. W., "Factors Influencing Preference and Memory for Auditory Rhythm." *Journal of General Psychology*, 1937, **17**, 63–104.

Hartmann, G. W., "The Contradiction between the Feeling Tone of Political Party Names and Public Response to Their Platforms." *Journal of Social Psychology*, 1936, **7**, 336–357.

———, "A Field Experiment on the Comparative Effectiveness of Emotional and Rational Political Leaflets in Determining Election Results." *Journal of Abnormal and Social Psychology*, 1936, **31**, 99–114.

———, "Immediate and Remote Goals as Political Motives." *Journal of Abnormal and Social Psychology*, 1938, **33**, 86–99.

———, and W. Watson, "The Rigidity of a Basic Attitudinal Frame." *Journal of Abnormal and Social Psychology*, 1939, **34**, 314–335.

Hepner, H. W., *Psychology Applied to Life and Work*. New York: Prentice-Hall, Inc., 1943.

Herring, E. P., "How Does the Voter Make Up His Mind?" *Public Opinion Quarterly*, 1938, **2**, 24–35.

Hevner, K., "Aesthetics," Chap. 21 in J. P. Guilford (ed.), *Fields of Psychology*. New York: D. Van Nostrand Company, Inc., 1940.

Hitler, Adolph, *Mein Kampf*. New York: Reynal & Hitchcock, 1940.

Hoffer, C. R., "A Sociological Analysis of Propaganda." *Social Forces*, 1942, **20**, 445–448.

Hoffman, A. C., "Luckiesh and Moss on Reading Illumination." *Journal of Applied Psychology*, 1947, **31**, 44–53.

Hollingworth, H. L., "The Influence of Alcohol." *Journal of Abnormal and Social Psychology*, 1923–1924, **18**, 204–237, 311–333.

———, "The Influence of Caffeine on Mental and Motor Efficiency." *Archives of Psychology*, 1912, No. 22.

Hoppock, R., *Job Satisfaction*. New York: Harper & Brothers, 1935.

———, and T. J. Hand, "Job Satisfaction Researches of 1942–43." *Occupations*, 1945, **23**, 412–415.

———, and R. H. Shaffer, "Job Satisfaction Research and Opinions of 1940–41." *Occupations*, 1943, **21**, 457–463.

Horowitz, E. L., "The Development of Attitude toward the Negro." *Archives of Psychology*, 1936, No. 194.

Horst, K., and W. L. Jenkins, "The Effect of Caffeine, Coffee, and Decaffeinated Coffee on Blood Pressure, Pulse Rate and Simple Reaction Time of Men of Various Ages." *Journal of Pharmacology and Experimental Therapeutics*, 1935, **53**, 385–400.

Hoskins, R. G., *The Tides of Life; The Endocrine Glands in Bodily Adjustment*. New York: W. W. Norton & Company, Inc., 1933.

Hovde, H. T., "The Relative Effects of Size of Type Leading and Context." *Journal of Applied Psychology*, 1929, **13**, 600–629; 1930, **14**, 63–73.

Hovland, C. I., "Weight Loss Changes during Muscular Work Following Food Ingestion." *American Journal of Physiology*, 1935, **112**, 307–309.

Hull, C. L., "The Influence of Tobacco Smoking on Mental and Motor Efficiency." *Psychological Monographs*, 1924, **33**, No. 3.

Hunt, J. McV., and R. L. Solomon, "The Stability and Some Correlates of Group Status in a Summer Camp Group of Young Boys." *American Journal of Psychology*, 1942, **55**, 33–45.

Hunt, W. A., and J. Volkmann, "The Anchoring of an Affective Scale." *American Journal of Psychology*, 1937, **49**, 88–92.

Hunter, E. C., and A. M. Jordan, "An Analysis of Qualities Associated with Leadership among College Students." *Journal of Educational Psychology*, 1939, **30**, 497–509.

Hurlock, E. B., "The Use of Group Rivalry as an Incentive." *Journal of Abnormal and Social Psychology*, 1927, **22**, 278–290.

———, "The Value of Praise and Reproof as Incentives for Children." *Archives of Psychology*, 1924, No. 71.

Huxtable, Z. L.; M. H. White; and M. A. McCartor, "A Re-performance and Re-interpretation of the Arai Experiment in Mental Fatigue with Three Subjects." *Psychological Monographs*, 1946, **59**, No. 275.

Jastrow, Joseph, *The Betrayal of Intelligence; A Preface to Debunking*. New York: Greenberg, Publisher, 1938.

———, *Fact and Fable in Psychology*. Boston: Houghton Mifflin Company, 1900.

———, *Wish and Wisdom*. New York: Appleton-Century-Crofts, Inc., 1935.

Jellinek, E. M. (ed.), *Alcohol Addiction and Chronic Alcoholism.* New Haven, Conn.: Yale University Press, 1942.

———, and R. A. McFarland, "Analysis of Psychological Experiments on the Effects of Alcohol." *Quarterly Journal of Studies on Alcohol,* 1940, **1,** 272–371.

Jenkins, J. G., and K. M. Dallenbach, "Oblivescence during Sleep and Waking." *American Journal of Psychology,* 1924, **35,** 605–612.

Jenkins, W. O., "A Review of Leadership Studies with Particular Reference to Military Problems." *Psychological Bulletin,* 1941, **44,** 54–79.

Jersild, A. T., "Mental Set and Shift." *Archives of Psychology,* 1927, No. 89.

Johanson, A. M., "The Influence of Incentive and Punishment upon Reaction Time." *Archives of Psychology,* 1922, No. 54.

Johnson, R. F., "Applied Physiology." *Annual Review of Physiology,* 1946, **8,** 535–558.

Jones, B. F.; R. H. Flinn; E. C. Hammond; et al., "Fatigue and Hours of Service of Interstate Truck Drivers." US Public Health Service, *Public Health Bulletin,* No. 265, 1941.

Kaczmarek, R. M., "Effect of Gelatin on the Work Output of Male Athletes and Non-Athletes and Girl Subjects." *Research Quarterly of the American Association of Health and Physical Education,* 1940, **11,** 109–119.

Karpovich, P. V., and K. Pestrecov, "Effects of Gelatin upon Muscular Work in Man." *American Journal of Physiology,* 1941, **134,** 300–309.

Karstein, A., "Psychische Sättigung." *Psychologische Forschung,* 1928, **10,** 142–254.

Katz, D., "Do Interviewers Bias Poll Results?" *Public Opinion Quarterly,* 1942, **6,** 248–268.

———, "Three Criteria: Knowledge, Conviction and Significance." *Public Opinion Quarterly,* 1940, **4,** 277–284.

Katzell, R. A., "Relations between the Activities of Muscles during Preparatory Set and Subsequent Overt Performance." *Journal of Psychology,* 1948, **26,** 407–436.

Keys, A., and A. F. Henschel, "Vitamin Supplementation of U. S. Army Rations in Relation to Fatigue and the Ability to Do Muscular Work." *Journal of Nutrition,* 1942, **23,** 259–269.

King, E. O.; L. B. McCaleb; et al., "Failure of Aminoacetic Acid to Increase the Work Capacity of Human Subjects." *Journal of the American Medical Association,* 1942, **118,** 594–597.

Kirby, T., *The Curve of Recovery from Fatigue.* Cincinnati, Ohio: University of Cincinnati Library, 1942 (unpublished).

Kirkpatrick, C., and S. Stone, "Attitude Measurement and the Comparison of Generations." *Journal of Applied Psychology,* 1935, **5,** 564–582.

Klineberg, Otto, *Race Differences.* New York: Harper and Brothers, 1935.

———, *Social Psychology.* New York: Henry Holt & Company, Inc., 1940.

Kluver, H., *Mescale; The Divine Plant and Its Psychological Effects.* London: Kegan Paul, 1928.

Kraut, H. A., and E. A. Muller, "Calorie Intake and Industrial Output." *Science,* 1946, **104,** 495–497.

Kretschmer, E., *Physique and Character* (Eng. trans.). New York: Harcourt, Brace & Company, Inc., 1925.

Kulpe, O., *Versuche über Abstraktion.* Leipzig: Bericht über den I. Kongress für experimentelle Psychologie, 1904.

Laird, D. A., "Experiments on the Physiological Cost of Noise." *Journal of the National Institute of Industrial Psychology,* 1928, **4,** 251–258.

———, and W. H. Wheeler, Jr., "What It Costs to Lose Sleep." *Industrial Psychology,* 1926, **1,** 694–696.

Langfeld, H. S., "On the Psychophysiology of a Prolonged Fast." *Psychological Monographs,* 1914, **26,** No. 16.

Lantz, B., "Some Dynamic Aspects of Success and Failure." *Psychological Monographs,* 1945, **59,** No. 1.

LaPiere, R. T., and P. R. Farnsworth, *Social Psychology* (2nd ed.). New York: McGraw-Hill Book Company, Inc., 1942.

Lashlett, H. M., "Experiments on the Effect of the Loss of Sleep." *Journal of Experimental Psychology,* 1928, **11,** 370–396.

Lasswell, H. D., *Propaganda Technique in the World War.* New York: Alfred A. Knopf, Inc., 1927.

———, and D. Blumenstock, *World Revolutionary Propaganda.* New York: Alfred A. Knopf, Inc., 1939.

———, and H. H. Cummings, *Public Opinion in War and Peace.* Washington, D. C.: Council for Social Studies, National Association of Secondary School Principals.

Lavine, H., and J. Wechsler, *War Propaganda and the United States.* New Haven, Conn.: Yale University Press, 1940.

Lazarsfeld, P. F., "The Change of Opinion during a Political Discussion." *Journal of Applied Psychology,* 1939, **23,** 131–147.

———, *Radio and the Printed Page.* New York: Duell, Sloan & Pearce, Inc., 1940.

———, et al., *The People's Choice.* New York: Duell, Sloan & Pearce, Inc., 1944.

———, and R. H. Franzen, "Prediction of Political Behavior in America." *American Sociology Review,* 1945, **10,** 261–273.

———, and H. Gaudet, "Who Gets a Job?" *Sociometry,* 1941, **4,** 64–77.

———; M. Jahoda; and H. Zeisl, *Die Arbeitslosen von Marienthal.* Leipzig: S. Hirzel, 1933.

Lee, A. M., "The Analysis of Propaganda: A Clinical Summary." *American Journal of Sociology,* 1945, **51,** 126–135.

Lee, Irving J., *Language Habits in Human Affairs.* New York: Harper & Brothers, 1941.

Lehman, H. C., and P. A. Witty, "The Constancy of Vocational Interest." *Personnel Journal,* 1929, **8,** 253–265.

——— and ———, "One More Study of Permanence of Interest." *Journal of Educational Psychology,* 1931, **22,** 481–492.

——— and ———, "Vocational Counseling: The Interest Inventory." *American Journal of Psychology,* 1932, **44,** 801–805.

Leuba, C. J., "A Preliminary Experiment to Quantify an Incentive and Its Effects." *Journal of Abnormal and Social Psychology,* 1930, **25,** 275–288.

Lewin, Kurt, *A Dynamic Theory of Personality.* New York: McGraw-Hill Book Company, Inc., 1935.

Library of Congress, *Propaganda—A List of Bibliographies.* Washington, D. C.: The Library of Congress, 1940.

Life Insurance Sales Research Bureau, *Morale and Agency Management:* Vol. I. *Morale—the Mainspring of Management;* Appendix. Vol. II. *Morale—What It Is and What It Does;* Appendix. Vol. III. *Morale—How to Build It.* Vol. IV. *Morale and Motivation.* Hartford, Conn.: The Bureau, 1940–1941.

Likert, R., "A Technique for the Measurement of Attitudes." *Archives of Psychology,* 1932, No. 140.

Lindemann, E., and W. Malamud, "Experimental Analysis of the Psychopathological Effects of Intoxicating Drugs." *American Journal of Psychiatry,* 1934, **13,** 852–881.

Link, H. C., "The Definition of Social Effectiveness and Leadership through Measurement." *Educational and Psychological Measurement,* 1944, **4,** 57.

———, *Manual for the P.Q. or Personality Quotient Test* (rev. ed.). New York: The Psychological Corporation, 1938.

———, "The Psychological Corporation Index of Public Opinion." *Journal of Applied Psychology,* 1945, **29,** 103–107.

———, *The Rediscovery of Man.* New York: The Macmillan Company, 1938.

———, and A. D. Freiberg, "The Problem of Validity vs. Reliability in Public Opinion Polls." *Public Opinion Quarterly,* 1942, **6,** 87–98.

Lippit, R., "An Experimental Study of the Effect of Democratic and Authoritarian Group Atmosphere." *University of Iowa Studies in Child Welfare,* **16,** No. 3, 43–195.

Luckiesh, M., and F. K. Moss, *The Science of Seeing.* New York: D. Van Nostrand Company, Inc., 1937.

Lukens, H. T., "Mental Fatigue." *American Physical Education Review,* 1899, **4,** Nos. 1 and 2.

Lundholm, H., "The Affective Tone of Lines: Experimental Researches." *Psychological Review,* 1921, **28,** 43–60.

Lythgoe, R. J., *The Measurement of Visual Acuity.* London: Medical Research Council, 1932.

Maccoby, E. E., and R. E. Holt, "How Surveys Are Made." *Journal of Social Issues,* 1946, **2,** No. 2, 45–57.

Mackay, Charles, *Extraordinary Popular Delusion.* 1849.

Mackworth, N. H., "Effects of Heat on Wireless Telegraphy Operators Hearing and Recording Morse Messages." *British Journal of Industrial Medicine,* 1946, **3,** 143–158.

Macmillan, J. W., "Eye-Movements and Attention." *American Journal of Psychology,* 1941, **54,** 374–384.

Main, R. J., "Acute Effects of Smoking on Respiration and Circulation." *Proceedings of the Society of Experimental Biology and Medicine,* New York, 1941, **48,** 495–500.

Maller, J. B., "Cooperation and Competition; An Experimental Study in Motivation." *Teachers College, Columbia University, Contributions to Education,* 1929, No. 384.

Manzer, C. W., "The Effect of Fatigue upon Variability of Output in Muscular Work." *Journal of Experimental Psychology,* 1934, **17,** 257–269.

———, "The Effect of Knowledge of Output on Muscular Work." *Journal of Experimental Psychology,* 1935, **3,** 80–90.

Marrow, A. J., "Goal Tensions and Recall." *Journal of General Psychology,* 1938, **19,** 3–35, 37–64.

Marshall, H., "Alcohol: A Critical Review of the Literature, 1929–1940." *Psychological Bulletin,* 1941, **38,** 193–217.

Mawrer, O. H., "Motivation and Learning in Relation to the National Emergency." *Psychological Bulletin,* 1941, **38,** 421–431.

May, M. A., and L. W. Doob, "Competition and Cooperation." *Social Science Research Council Bulletin,* 1937, No. 25.

McCall Corporation, *Qualitative Study of Magazines.* New York: McCall Corporation, 1946.

McCormick, W. J., "Vitamin B_1 and Physical Endurance." *Medical Record,* New York, 1940, **152,** 439–442.

McNemar, Q., "Opinion-Attitude Methodology." *Psychology Bulletin,* 1946, **43,** 289–374.

———, "Sampling in Psychological Research." *Psychology Bulletin,* 1940, **37,** 331–365.

Meerloo, A. M., *Total War and the Human Mind; A Psychologist's Experience in Occupied Holland.* London: Allen & Unwin, 1944.

Merton, Robert K.; M. Fiske; and A. Curtis, *Mass Persuasion: The Social Psychology of a War Bond Drive.* New York: Harper & Brothers, 1946.

Miles, D. W., "Preferred Rates in Rhythmic Response." *Journal of General Psychology,* 1937, **16,** 427–469.

Miles, W. R., *Alcohol and Human Efficiency.* Washington, D. C.: Carnegie Institute, 1924.

Miller, D. C., "Morale of College Trained Adults." *American Sociological Review,* 1940, **5,** 880–889.

———, "Personality Factors in Morale of College Trained Adults." *Sociometry,* 1940, **3,** 367–382.

Moore, J. H., "The Role of the Determining Tendencies

in Learning." *American Journal of Psychology,* 1936, **48,** 559–571.

Moreno, J. L., *Who Shall Survive?* Washington, D. C.: Nervous and Mental Disease Publishing Company, 1934.

———, and H. H. Jennings, "Sociometric Control Studies of Grouping and Regrouping." *Sociometry Monographs,* 1947, No. 7.

Morgan, C. M., "The Attitudes and Adjustments of Recipients of Old Age Assistance in Upstate and Metropolitan New York." *Archives of Psychology,* 1937, No. 214.

Morgan, J. J. B., "The Overcoming of Distraction and Other Resistances." *Archives of Psychology,* 1916, No. 35.

Mosso, A., *Fatigue,* translated by Drummond and Drummond. New York: G. P. Putnam's Sons, 1904.

Müller, G. E., and F. Schumann, "Über die psychologischen Grundlagen der Vergleichung gehobener Gewichte." *Archives für die Physiologie,* 1889, **45,** 37–112.

Munro, T., *Scientific Method in Aesthetics.* New York: W. W. Norton & Company, Inc., 1928.

Murphy, Gardner, and Rensis Likert, *Public Opinion and the Individual.* New York: Harper & Brothers, 1938.

———; L. B. Murphy; and T. M. Newcomb, *Experimental Social Psychology* (rev. ed.). New York: Harper & Brothers, 1937.

National Research Council, Committee on Work in Industry, *Fatigue of Workers and Its Relation to Industrial Production.* New York: Reinhold Publishing Corporation, 1941.

Nelson, E., "Attitudes." *Journal of Genetic Psychology,* 1939, **21,** 367–436.

New York State Commission on Ventilation, *Ventilation Report.* New York: E. P. Dutton & Co., Inc., 1923.

Newburger, M., "The Relative Importance of Homogeneity and Difficulty in the Development of Mental Fatigue at Two Different Levels of Intelligence." *Journal of Applied Psychology,* 1942, **26,** 81–93.

Newcomb, T. M., and E. L. Hartley, *Readings in Social Psychology.* New York: Henry Holt & Company, Inc., 1947.

Newman, H., "Acquired Tolerance to Ethyl Alcohol." *Journal of Studies on Alcohol Quarterly,* 1941, **2,** 453–463.

———, and M. Abramson, "Relation of Alcohol Concentration to Intoxication." *Proceedings of the Society of Experimental Biology and Medicine,* New York, 1941, **48,** 509–513.

Office of Facts and Figures, *Divide and Conquer.* Washington, D. C.: The Office, 1941.

Ogden, R. M., *The Psychology of Art.* New York: Charles Scribner's Sons, 1938.

Pace, C. R., "Factors Influencing Questionnaire Returns from Former University Students." *Journal of Applied Psychology,* 1939, **23,** 388–397.

———, "Stated Behavior vs. Stated Opinions as Indicators of Social-Political-Economic Attitudes." *Journal of Social Psychology,* 1940, **11,** 369–381.

Pachauri, A. R., "A Study of Gestalt Problems in Completed and Interrupted Tasks." *British Journal of Psychology,* 1935, **25,** 365–381, 447–457.

Pack, F. J., "Smoking and Football Men." *Popular Science Monthly,* 1912, **81,** 336–344.

Painter, W. S., "Efficiency in Mental Multiplication under Extreme Fatigue." *Journal of Educational Psychology,* 1916, **7,** 25–30.

Parkhurst, G., "Laymen and Alcoholics." *Harper's Magazine,* 1941, **183,** 422–429.

Partridge, E. D., "Leadership among Adolescent Boys." *Teachers College, Columbia University, Contributions to Education,* 1934, No. 608.

Paterson, D. G., *Physique and Intellect.* New York: Appleton-Century-Crofts, Inc., 1930.

———, and M. A. Tinker, "The Effect of Typography upon the Perceptual Span in Reading." *American Journal of Psychology,* 1947, **60,** 388–396.

——— and ———, *How to Make Type Readable.* New York: Harper & Brothers, 1940.

——— and ———, "Readability of Newspaper Headlines Printed in Capitals and in Lower Case." *Journal of Applied Psychology,* 1946, **30,** 161–168.

——— and ———, "The Relative Readability of Newsprint and Book Print." *Journal of Applied Psychology,* 1946, **30,** 454–459.

Pearl, R., "Tobacco Smoking and Longevity." *Science,* 1938, **87,** 216–217.

Pearson, Karl, "On the Relationship of Intelligence to the Size and Shape of the Head." *Biometricka,* 1907, **5,** 105–106.

Peters, C. C., and W. R. van Voorhis, *Statistical Procedures and Their Mathematical Bases.* New York: McGraw-Hill Book Company, Inc., 1940.

Peterson, H. A., "Recitation or Recall as a Factor in the Learning of Long Prose Selections." *Journal of Educational Psychology,* 1944, **35,** 220–228.

Peterson, H. C., *Propaganda for War.* Norman, Okla.: University of Oklahoma Press, 1939.

Philip, B. R., "Studies in High Speed Continuous Work: II. Decrement." *Journal of Experimental Psychology,* 1939, **25,** 307–315.

Piel, G., "Your Personality Sits for Its Photo." *Nation's Business,* 1947.

Pincus, G., and H. Hoagland, "Effects of Administered Pregnenolone on Fatiguing Psychomotor Performance." *Journal of Aviation Medicine,* 1944, **15,** 98–115, 135.

Pintner, R., *Intelligence Testing: Methods and Results* (rev. ed.). New York: Henry Holt & Company, Inc., 1931.

Poffenberger, A. T., "The Effect of Continuous Mental Work." *American Journal of Psychology,* 1927, **39,** 283–296.

———, "The Effects of Continuous Mental Work upon Output and Feelings." *Journal of Applied Psychology,* 1928, **12,** 459–467.

———, *Principles of Applied Psychology.* New York and London: Appleton-Century-Crofts, Inc., 1942.

———, and B. E. Barrows, "The Feeling Value of Lines." *Journal of Applied Psychology,* 1924, **8,** 187–205.

Polakov, W. N., "Carbon Dioxide as an Index of Fatigue." *Mechanical Engineering,* 1925, **47,** 1043–1046.

———, "Making Work Fascinating as the First Step toward Reduction of Waste." *Mechanical Engineering,* 1921, **43,** 731–734, 765.

Pollock, K. G., and M. A. Bartlett, *Psychological Experiments on the Effects of Noise.* London: Industrial Health Research Board Report No. 65, 1932.

Princeton University, Industrial Relations Section, "Fatigue and Productivity." *Industrial Relations Digests,* 1942, No. 12.

Psychological Warfare Division, Supreme Headquarters, Allied Expeditionary Force; An Account of Its Operation in the Western European Campaign, 1944–45. Hamburg, Germany: October, 1945.

Punce, D. C., "Leadership by Persuasion." *Mechanical Engineering,* 1946, 435–437.

Pyke, R. L., *Report on the Legibility of Print.* London: H. M. Stationery Office, 1926.

Remmers, H. H. (ed.), "Further Studies in Attitudes, Series I, II, III and IV." *Bulletin of Purdue University,* Studies in Higher Education XXVI (1934), XXXI (1935), XXXIV (1938), XLVIII (1943).

———, and E. B. Silance, "Generalized Attitude Scales." *Journal of Social Psychology,* 1934, **5,** 298–312.

Riker, B. L., "A Comparison of Methods Used in Attitude Research." *Journal of Abnormal and Social Psychology,* 1944, **39,** 24–42.

Rivers, W. H. R., *The Influence of Alcohol and Other Drugs on Fatigue.* London: Edward Arnold & Co., 1908.

Robinson, E. S., "Work of the Integrated Organism," in C. Murchison (ed.), *A Handbook of General Experimental Psychology.* Worcester, Mass.: Clark University Press, 1934, pp. 571–650.

———, and A. G. Bills, "Two Factors in the Work Decrement." *Journal of Experimental Psychology,* 1926, **9,** 415–443.

———, and S. O. Herrmann, "Effects of Loss of Sleep." *Journal of Experimental Psychology,* 1922, **5,** 19–32.

Robinson, S., "The Effect of Body Size upon Energy Exchange in Work." *American Journal of Physiology,* 1942, **136,** 363–368.

Rosenthal, S. P., "Change of Socio-economic Attitudes under Radical Motion Picture Propaganda." *Archives of Psychology,* 1934, No. 166.

Roslow, S., "Nation-wide and Local Validation of the P.Q. or Personality Quotient Test." *Journal of Applied Psychology,* 1940, **24,** 529–539.

Ruch, F. L., "The Problem of Measuring Morale." *Journal of Educational Sociology,* 1941, **15,** 221–228.

———, *Psychology and Life.* Chicago: Scott, Foresman & Company, 1941.

Rugg, D., and H. Cantril, "The Wording of Questions in Public Opinion Polls." *Journal of Abnormal and Social Psychology,* 1942, **37,** 469–495.

Rundquist, E. A., and R. F. Sletto, *Personality in the Depression: A Study in the Measurement of Attitudes.* Minneapolis, Minn.: University of Minnesota Press, 1936.

Ryan, T. A., "Varieties of Fatigue." *American Journal of Psychology,* 1944, **57,** 565–569.

———, *Work and Effort; The Psychology of Production.* New York: The Ronald Press Company, 1947.

Sadler, W. S., *The Mind at Mischief.* New York: Funk & Wagnalls Company, 1929.

Sanford, R. N., and H. S. Conrad, "Some Personality Correlates of Morale." *Journal of Abnormal and Social Psychology,* 1943, **38,** 3–20.

Sappenfield, B. R., "The Attitudes and Attitude Estimates of Catholic, Protestant and Jewish Students." *Journal of Social Psychology,* 1942, **16,** 173–197.

Sarbin, T. R., and H. C. Anderson, "A Preliminary Study of the Relation of Measured Interest Patterns and Occupational Dissatisfaction." *Educational and Psychological Measurement,* 1942, **2,** 23–36.

Schubert, H. J. P., "Energy Measurements on the Curve of Work; An Analysis of the Organic Response in Terms of Oxygen Metabolism, Heart Rate, and Breathing Rate." *Archives of Psychology,* 1932, No. 139.

Seashore, R. H., "An Experimental and Theoretical Analysis of Fine Motor Skills." *American Journal of Psychology,* 1940, **53,** 86–98.

———, "Work Methods; An Often Neglected Factor Underlying Individual Differences." *Psychological Review,* 1939, **46,** 123–141.

Seitz, C. P., and J. E. Barmack, "The Effects of 10 Mgs. of Benzedrine Sulfate and Low Oxygen Tension on the Span of Attention for Letters and Other Factors." *Journal of Psychology,* 1940, **10,** 241–247.

Shaffer, L. F., "Fear and Courage in Aerial Combat." *Journal of Consulting Psychology,* 1947, **11,** 137–143.

Sharkey, V. J., and J. W. Dunlap, "Study of the Reliability and Validity of the Academic Preference Blank." *Journal of Educational Psychology,* 1940, **31,** 103–110.

Sharp, L. H., "Effects of Residual Tension on Output and Energy Expenditure in Muscular Work." *Journal of Experimental Psychology,* 1941, **29,** 1–32.

Sheldon, W. H., and S. S. Stevens, *The Varieties of Temperament; A Psychology of Constitutional Differences.* New York: Harper & Brothers, 1942.

———; ———; and W. B. Tucker, *The Varieties of Human Physique.* New York: Harper & Brothers, 1940.

Simonson, E., and N. Enzer, "The Effect of Amphet-

amine (Benzedrine) Sulfate on the State of Motor Centers." *Journal of Experimental Psychology*, 1941, **29**, 517–523.

Sington, D., and A. Weidenfeld, *The Goebbels Experiment*. New Haven, Conn.: Yale University Press, 1943.

Skaggs, L. B., "A Study of Warming-up in the Case of a Task of More Complicated Perceptual Motor Coordination." *Journal of Applied Psychology*, 1931, **15**, 499–511.

Smith, B. L.; H. D. Lasswell; and R. D. Casey (eds.), *Propaganda, Communication and Public Opinion; A Comprehensive Reference Guide*. Princeton, N. J.: Princeton University Press, 1946.

Smith, E. L., and D. A. Laird, "The Loudness of Auditory Stimuli Which Affect Stomach Contractions in Healthy Human Beings." *Journal of the Acoustical Society of America*, 1930, **2**, 94–98.

Smith, F. T., "An Experiment in Modifying Attitudes towards the Negro." *Teachers College, Columbia University, Contributions to Education*, 1943, No. 887.

Smith, K. R., "Fatigue." *Psychological Bulletin*, 1941, **38**, 364–369.

Smith, M., and W. C. Nystrom, "A Study of Social Participation and of Leisure Time of Leaders and Non-Leaders." *Journal of Applied Psychology*, 1937, **21**, 251–259.

Society for the Psychological Study of Social Issues, Gardner Murphy (ed.), *Third Yearbook: Human Nature and Enduring Peace*. New York: Reynal & Hitchcock, 1945.

Spearman, C., *The Abilities of Man*. New York: The Macmillan Company, 1927.

Spragg, S. D. S., "The Effects of Certain Drugs on Mental and Motor Efficiency." *Psychological Bulletin*, 1941, **38**, 354–363.

Springer, N. N., and S. Roslow, "A Study in the Estimation of Feelings." *Journal of Applied Psychology*, 1935, **19**, 379–384.

Stagner, R., "Attitudes," in W. S. Monroe (ed.), *Encyclopedia of Educational Research*. New York: The Macmillan Company, 1941.

———, "The Cross-out Technique as a Method in Public Opinion Analysis." *Journal of Social Psychology*, 1940, **11**, 79–90.

Stevens, S. S.; J. P. Egan; T. H. Waterman; J. Miller; and R. H. Knapp, "The Effect of Airplane Noise on Human Efficiency." *The American Psychologist*, 1946, **1**, 283 (abs.).

Stoddard, G. D., *The Meaning of Intelligence*. New York: The Macmillan Company, 1943.

Stogdill, R. M., "Personal Factors Associated with Leadership; A Survey of the Literature." *Journal of Psychology*, 1948, **25**, 35–71.

———, and C. L. Shartle, "Methods for Determining Patterns of Leadership Behavior in Relation to Organization Structure and Objectives." *Journal of Applied Psychology*, 1948, **32**, 286–291.

Strecker, E. A., and F. T. Chambers, *Alcohol: One Man's Meat—*. New York: The Macmillan Company, 1938.

Strong, E. K., *Vocational Interests of Men and Women*. Palo Alto, Calif.: Stanford University Press, 1943.

Super, D. E., *Appraising Vocational Fitness by Means of Psychological Tests*. New York: Harper & Brothers, 1949.

———, *Avocational Interest Patterns; A Study in the Psychology of Avocations*. Palo Alto, Calif.: Stanford University Press, 1940.

———, "Avocations and Vocational Adjustment." *Character and Personality*, 1941, **10**, 51–61.

———, "The Kuder Preference Record in Vocational Diagnosis." *Journal of Consulting Psychology*, 1947, **11**, 183–193.

———, "Occupational Level and Job Satisfaction." *Journal of Applied Psychology*, 1939, **23**, 547–564.

———, "Vocational Interest and Vocational Choice; Present Knowledge and Research in Their Relationships." *Educational and Psychological Measurement*, 1947, **7**, 375–383.

Sward, K. T., "An Experimental Study of Leadership." *Journal of Social Psychology*, 1931, **2**, 374–396.

Taylor, C. D., "The Relative Legibility of Black and White Print." *Journal of Educational Psychology*, 1934, **25**, 561–578.

Taylor, H. L., et al., "The Effect of Successive Fasts on the Ability of Man to Withstand Fasting during Hard Work." *American Journal of Physiology*, 1945, **143**, 148–155.

Terman, L. M., "The Psychology and Pedagogy of Leadership." *Pedagogical Seminary and Journal of Genetic Psychology*, 1904, **11**, 413–451.

Thorndike, E. L., "The Curve of Work." *Psychological Review*, 1912, **19**, 165–194.

———, "The Curve of Work and the Curve of Satisfyingness." *Journal of Applied Psychology*, 1917, **1**, 263–267.

———, *The Psychology of Wants, Interests and Attitudes*. New York: Appleton-Century-Crofts, Inc., 1935.

———, and J. C. Chapman, *Ventilation in Relation to Mental Work*. New York: Teachers College, Columbia University, 1916.

Thornton, G. R.; H. G. O. Holck; and E. L. Smith. "The Effect of Benzedrine and Caffeine upon Performance in Certain Psychomotor Tasks." *Journal of Abnormal and Social Psychology*, 1939, **34**, 96–113.

Thurstone, L. L., "The Measurement of Social Attitudes." *Journal of Abnormal and Social Psychology*, 1931, **26**, 249–264.

———, and E. J. Chave, *The Measurement of Attitude*. Chicago: University of Chicago Press, 1929.

Tiffin, J., "The Use of Visual Data as an Aid to Increased Production and Efficiency." *Transactions of the American Academy of Ophthalmology and Otolaryngology*, 1943–1944, **48**, 194–196.

Tinker, M. A., "Illumination Standards for Effective and Comfortable Vision." *Journal of Consulting Psychology*, 1939, **3**, 11–19.

———, "Illumination Standards for Effective and Easy Seeing." *Psychological Bulletin,* 1947, **44,** 435–450.
———, and D. G. Paterson, "Differences among Newspaper Body Types in Readability." *Journalism Quarterly,* 1943, **20,** 152–155.
——— and ———, "Effect of Line Width and Leading on Readability of Newspaper Type." *Journalism Quarterly,* 1946, **23,** 307–309.
——— and ———, "Influence of Leading upon Readability of Newspaper Type." *Journal of Applied Psychology,* 1947, **31,** 160–163.
——— and ———, "Readability of Mixed Type Forms." *Journal of Applied Psychology,* 1946, **30,** 631–637.
——— and ———, "Reader Preferences and Typography." *Journal of Applied Psychology,* 1942, **26,** 38–40.
——— and ———, "War Time Changes in Newspaper Printing Practice." *Journalism Quarterly,* 1944, **21,** 7–11.
Tolman, E. C., *Purposive Behavior in Animals and Men.* New York: Appleton-Century-Crofts, Inc., 1932.
Triggs, F. O., "A Further Comparison of Interest Measurement by the Kuder Preference Record and the Strong Vocational Interest Blank for Men." *Journal of Educational Research,* 1944, **37,** 538–544.

Vaughan, W. F., *Social Psychology; The Science and Art of Living.* New York: Odyssey Press, Inc., 1948.
Vaughn, J., and C. M. Diserens, "The Relative Effects of Various Intensities of Punishment on Learning and Efficiency." *Journal of Comparative Psychology,* 1930, **10,** 55–66.
Vernon, P. E., "Psychological Effects of Air Raids." *Journal of Abnormal and Social Psychology,* 1941, **36,** 457–476.
Vetter, G. B., and M. Green, "Personality and Group Factors in the Making of Atheists." *Journal of Abnormal and Social Psychology,* 1932, **27,** 179–194.

Walton, R. P., *Marihuana.* Philadelphia: J. B. Lippincott Company, 1938.
War Department, "What Is Morale?" in *What the Soldier Thinks.* Morale Services Division, 1943, **1,** 1–7.
Warburg, James P., *Unwritten Treaty.* New York: Harcourt, Brace & Company, Inc., 1946.
Ward, D. F., "Dip in Work Curves." *British Journal of Psychology,* 1940, **31,** 162–171.
Warden, C. J.; J. N. Jenkins; L. H. Warner; M. P. Jenkins; E. L. Hamilton; and H. W. Nissin, *Animal Motivation.* New York: Columbia University Press, 1931.
Watson, G. (ed.), *Civilian Morale.* New York: Reynal & Hitchcock, 1942.
Watson, R., and V. E. Fisher, "An Inventory of Affective Potency." *Journal of Psychology,* 1941, **12,** 139–148.
Weiner, J. S., and J. C. D. Hutchinson, "Hot Humid Environment: Its Effect on the Performance of Motor Coordination Tests." *British Journal of Industrial Medicine,* 1945, **2,** 154–157.
Whipple, G. M., *Manual of Physical and Mental Tests.* Baltimore: Warwick & York, 1914.
Whisler, L. D., and H. H. Remmers, "A Scale for Measuring Individual and Group Morale." *Journal of Psychology,* 1937, **4,** 161–165.
Wilcox, W. W., "The Basis of the Dependence of Visual Acuity on Illumination." *Proceedings of the National Academy of Science,* 1932, **18,** 47–56.
Williams, Douglas, "Basic Instructions for Interviewers." *Public Opinion Quarterly,* 1942, **6,** 634–641.
Williams, H. S., *Drugs against Men.* New York: Robert M. McBride & Company, 1935.
Williams, S. B., and H. J. Leavitt, "Group Opinion as a Predictor of Military Leadership." *Journal of Consulting Psychology,* 1947, **11,** 283–291.
Winslow, C. E. A., "How Many Foot Candles?" *Journal of Applied Psychology,* 1947, **31,** 140–142.
Wolfle, D., "The Measurement of Civilian Morale." *Psi Chi News Letter,* 1942 (January), 3–6.
Woodworth, R. S., *Experimental Psychology.* New York: Henry Holt & Company, Inc., 1938.

Yacorzynski, G. K., "Degree of Effort: I. An Investigation of a Concept in the Field of Motivation." *Journal of Experimental Psychology,* 1928, **23,** 45–51.
Yochelson, S. C., Unpublished studies reported in M. S. Viteles, *Industrial Psychology.* New York: W. W. Norton & Company, Inc., 1932, pp. 442–445.
Young, K., *Social Psychology.* New York: Appleton-Century-Crofts, Inc., 1944.
——— (ed.), *Social Attitudes.* New York: Henry Holt & Company, Inc., 1931.
Young, P. T., *Motivation of Behavior.* New York: John Wiley & Sons, Inc., 1936.

Zeleny, L. D., "Characteristics of Group Leaders." *Sociology and Social Research,* 1939, **24,** 140–149.
Ziegarnik, B., "Das Behalten erledigter und unerledigter Handlungen." *Psychologische Forschung,* 1927, **9,** 1–85.
Zorbaugh, H. W. (ed.), "Civilian Morale." *Journal of Educational Sociology,* 1941, **15,** 193–253.

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Achilles, P. S., and R. S. Schults, "Characteristics of Life Insurance Salesmen." *Personnel Journal,* 1934, **12,** 260–263.
Adjutant General's Office, Personnel Research Section, War Department, "The Army General Classification Test." *Psychological Bulletin,* 1945, **42,** 760–768.
———, "The Army General Classification Test, with Special Reference to the Construction and Standardization of Forms 1a and 1b." *Journal of Educational Psychology,* 1947, **38,** 385–420.
———, "Construction and Selection of Items for the Biographical Information Blank (BIB)." *Report* No. 703, 1945.
———, "The Forced Choice Technique and Rating Scales." *American Psychologist,* 1946, **1,** 267 (abs.).

———, "Item Analysis of the Multiphasic Personality." *Report* No. 700, 1945.

———, "Methodological Investigation of the Forced-Choice Technique." *Report* No. 701, 1945.

———, "Personnel Research in the Army: II. The Classification System and the Place of Testing." *Psychological Bulletin*, 1943, **40**, 205–211.

———, "Personnel Research in the Army: VI. The Selection of Truck Drivers." *Psychological Bulletin*, 1943, **40**, 499–508.

———, "Prediction of Leadership Qualifications for Officer Candidates in the Signal Corps." *Report* No. 711, 1946.

———, "Validation of Form E of the Biographical Information Blank (BIB)." *Report* No. 716, 1946.

———, "Validation of a Program for the Selection of Officers for Retention in the Peacetime Army." *Report* No. 704, 1946.

Adkins, D. C., *A Comparative Study of Methods of Selecting Test Items*. Columbia, Ohio: The Ohio State University Library, 1937 (unpublished).

———, and H. A. Toops, "Simplified Formulas for Item Selection and Construction." *Psychometrika*, 1937, **2**, 165–171.

Air Surgeon's Office, *Stanines; Selection and Classification for Air Crew Duty*. Washington, D. C.: Government Printing Office, 1946.

Allen, E. P., "The Selection of Engineering Apprentices." *Journal of the National Institute of Industrial Psychology*, 1931, **5**, 379–384.

———, and P. Smith, "The Selection of Engineering Apprentices: II." *Human Factor*, 1936, **9**, 63–67.

Allport, G. W., and F. H. Allport, *The A-S Reaction Study*. Boston: Houghton Mifflin Company, 1928.

American Association of Motor Vehicle Administration, *Procedure for the Minimum Standard Examination for Drivers*. Washington, D. C.: The Association, 1939.

Anderberg, R., "Selecting Personnel for the Swedish State Railways with the Aid of Psychological Tests." *Occupational Psychology*, 1939, **13**, 211–222.

———, and C. Westerlund, "Psychological Testing of Abilities and Personnel Selection in the Textile Industry." *Acta Psychologica*, Hague, 1940, **5**, 16–52.

Anderson, R. N., "Review of Clerical Test (1929–1942)." *Occuptions*, 1943, **21**, 654–660.

Andrew, D. M., "An Analysis of the Minnesota Vocational Test for Clerical Workers." *Journal of Applied Psychology*, 1937, **21**, 18–48, 139–172.

———, and D. G. Paterson, "Measured Characteristics of Clerical Workers." *Bulletins of the Employment Stabilization Research Institute, University of Minnesota*, 1934, **3**, No. 1.

Armstrong, T. O., "Talking Your Ratings." *Personnel*, 1943, **20**, 112–115.

Army, *Personnel System of the US Army:* Vol. I. *History of the Personnel System*. Vol. II. *The Personnel Manual*. Washington, D. C.: Government Printing Office, 1919.

———, *Trade Specifications and Index*. Washington, D. C.: Government Printing Office, 1918.

———, Committee on Classification of Personnel, "The Personnel System of the United States Army." *The Personnel Manual*, 1919, **2**, 299.

Army Air Forces, Aviation Psychology Program. *Research Reports*, Nos. 1 to 19. Washington, D. C.: Government Printing Office, 1946–1948.

Baker, H., "Employee Counseling." *Personnel Journal*, 1944, **22**, 354–362.

Balinsky, B., "A Note on the Use of the Rorschach in the Selection of Supervisory Personnel." *Rorschach Research Exchange*, 1944, **8**, 184–188.

Barrett, M., "A Comparison of the Order of Merit Method and the Method of Paired Comparisons." *Psychological Review*, 1914, **21**, 278–294.

Barron, M. E., "The Emerging Role of Public Employee Counseling." *Public Personnel Review*, 1945, **6**, 9–16.

Bartlett, E. D., "Aptitude Tests and the Selection of Office Workers." *American Management Association, Office Management Series*, 1938, **84**, 4–12.

Baruch, D. W., "Why They Terminate." *Journal of Consulting Psychology*, 1944, **8**, 35–46.

Bauermann, H., "Ein Beitrag zur Frage der individuellen Verschiedenheiten im Bedienen von Werkzeugmaschinen." (A Contribution to the Question of Individual Differences in the Running of Machinery.) *Psychotechnische Zeitschrift*, 1928, **3**, 87–98.

Bean, K. L., "Development of an English Usage Test for Clerks, Typists, and Stenographers." *Educational and Psychological Measurement*, 1946, **6**, 331–339.

Beckham, A. S., "Minimum Intelligence Levels for Several Occupations." *Personnel Journal*, 1930, **9**, 309–313.

Bell, H. M., *Matching Youth and Jobs; A Study of Occupational Adjustment*. Washington, D. C.: American Council on Education, 1940.

Bellows, R. M., *Psychology of Personnel in Business and Industry*. New York: Prentice-Hall, Inc., 1949.

———, "Studies of Clerical Workers," in W. H. Stead, *Occupational Counseling Techniques*. New York: American Book Company, 1940, pp. 137–154.

Benge, E. J., *Job Evaluation and Merit Rating*. New York: National Foreman's Institute, 1945.

———; S. L. H. Burk; and E. N. Hay, *Manual of Job Evaluation*. New York: Harper & Brothers, 1941.

Benjamin, H. C., *Employment Tests in Industry and Business: A Selected, Annotated Bibliography*. Princeton: Industrial Relations Section, Bibliographical Service No. 67 (rev.), 1945.

Bennett, G. K., and R. M. Cruikshank, *A Summary of Clerical Tests*. New York: The Psychological Corporation, 1949.

———, and R. A. Fear, "Mechanical Comprehension and Dexterity." *Personnel Journal*, 1943, **22**, 12–17.

Bernreuter, Robert G., and Theodore A. Jackson, "Sales Personnel Selection and Related Services." *Journal of Consulting Psychology*, 1946, **10**, 127–130.

Biegel, A., "Eine Eignungsprüfung für Funkentelegraphisten." (An Aptitude Test for Radio-Telegraphers.) *Psychotechnische Zeitschrift*, 1931, **6**, 41–45.

Biegoleisen, B., "Diagnostycznosc badan psychotechnicznych w szkolach zawodwych." (Diagnostic Value of Psychotechnical Examinations in Trade Schools.) *Psychotechnika*, 1935, **9**, 9–27.

Bills, M. A., "Psychology Applied to Problems of Office Personnel." *Journal of Consulting Psychology*, 1944, **8**, 160–164.

———, "Relation of Scores in Strong's Interest Analysis Blanks to Success in Selling Casualty Insurance." *Journal of Applied Psychology*, 1938, **22**, 97–104.

———, "Selection of Casualty and Life Insurance Agents." *Journal of Applied Psychology*, 1941, **25**, 6–10.

———, and L. W. Ward, "Testing Salesmen of Casualty Insurance." *Personnel Journal*, 1936, **15**, 55–58.

Bingham, W. V., *Aptitudes and Aptitude Testing*. New York: Harper & Brothers, 1937.

———, "The Army Personnel Classification System." *Annals of the American Academy of Political and Social Science*, 1942, **220**, 18–28.

———, "Classifying and Testing for Clerical Jobs." *Personnel Journal*, 1935, **14**, 163–172.

———, *Oral Examination in Civil Service Recruitment*. Chicago: Civil Service Assembly, Pamphlet No. 13, 1929.

———, "Personnel Classification Testing in the Army." *Science*, 1944, **100**, 275–280.

———, and Max Freyd, *Procedures in Employment Psychology*. Washington, D. C.: Shaw Publishing Company, 1926.

———, and B. V. Moore, *How to Interview* (3rd rev. ed.). New York: Harper & Brothers, 1941.

Blum, M. L., "Selection of Sewing Machine Operators." *Journal of Applied Psychology*, 1943, **27**, 35–40.

———, and B. Candee, "The Selection of Department Store Packers and Wrappers with the Aid of Certain Psychological Tests: II." *Journal of Applied Psychology*, 1941, **25**, 291–299.

Bolanovich, D. J., "Selection of Female Engineering Trainees." *Journal of Educational Psychology*, 1944, **35**, 545–553.

———, "Statistical Analysis of an Industrial Rating Chart." *Journal of Applied Psychology*, 1946, **30**, 23–31.

Borow, H., "The Growth and Present Status of Occupational Testing." *Journal of Consulting Psychology*, 1944, **8**, 70–79.

Bostureck, S. E., "The Principle of Basic Element Standards Applied to Job Evaluation." *Advanced Management*, 1944, **9**, 82–87.

Bradshaw, F. F., "The American Council on Education Rating Scale: Its Reliability, Validity and Use." *Archives of Psychology*, 1930, No. 119.

———, "Revising Rating Techniques." *Personnel Journal*, 1931, **10**, 232–245.

———, "What's Wrong with Service Ratings?" *Public Personnel Studies*, 1929, **7**, 18–28.

Bramsfeld, "Arbeitsgerichtliche Entscheidung auf Grund eines Eignungsbefundes." (A Court Decision on the Basis of an Aptitude Analysis.) *Industrielle Psychotechnik*, 1933, **10**, 25.

Brash, J. A., "Time-Study Methods Applied to Job Evaluation." *Journal of Consulting Psychology*, 1945, **9**, 152–160.

Brewer, J. M., *Reasons for Discharge*. Washington, D. C.: Federal Board for Vocational Education, Bulletin No. 45, 1927.

Broadman, K., "Absenteeism, Working Efficiency and Emotional Maladjustment." *Industrial Medicine*, 1945, **14**, 1–5.

Burnham, P. S., and A. B. Crawford, "The Vocational Interests and Personality Test Scores of a Pair of Dice." *Journal of Educational Psychology*, 1935, **26**, 508–512.

Burtt, H. E., *Principles of Employment Psychology* (rev. ed.). New York: Harper & Brothers, 1942.

Cantor, N. F., *Employee Counseling*. New York: McGraw-Hill Book Company, Inc., 1945.

———, and I. C. Bonning, "Functions of Personnel Counselors." *Personnel Journal*, 1944, **23**, 104–110.

Cardall, A. J., "Occupational Classification." *Personnel Journal*, 1943, **22**, 54–57.

Cattell, R. B., "Occupational Norms of Intelligence, and the Standardization of an Adult Intelligence Test." *British Journal of Psychology*, 1934, **25**, 1–28.

Chapman, J. C., and D. R. Chapman, *Trade Tests*. New York: Henry Holt & Company, Inc., 1921.

Chase, W. P., and J. G. Darley, "Age Changes and Occupational Test Scores among Clerical Workers." *Bulletins of the Employment Stabilization Research Institute, University of Minnesota*, 1934, No. 4, 15–23.

Chester, David J., "Reliability and Comparability of Different Job Evaluation Systems." *Journal of Applied Psychology*, 1948, **32**, 465–475.

Cleeton, G. U.; M. A. Kraft; and R. F. Royster, *The American Transit Motor Ability Test; A Manual of Instruction*. New York: American Transit Association, 1946.

———; ———; and ———, *The Personal Reaction Test for Transit Employees; A Manual of Instruction*. New York: American Transit Association, 1946.

———; ———; and ———, *The Placement Interview for Transit Employees; A Manual of Instruction*. New York; American Transit Association, 1946.

———; ———; and ———, *Selection and Employment of Transit Operating Personnel*. New York: American Transit Association, 1946.

———; ———; and ———, *The Standard Examination for Transit Employees; A Manual of Instruction*. New York: American Transit Association, 1946.

Conrad, H. S., and G. B. Martin, "The Index of Forecasting Efficiency, for the Case of a 'True' Criterion." *Journal of Experimental Education*, 1936, **4**, 231–244.

Cook, D. W., and M. F. Barre, "The Effect of Specialized Industrial Norms on the Use of the Minnesota Rate of Manipulation Test as a Selective Instrument in Employment Procedure." *Journal of Applied Psychology,* 1942, **26,** 785–792.

Cooper, John H., "Rating Forms," Chap. 4 in W. H. Stead, et al., *Occupational Counseling Techniques.* New York: American Book Company, 1940.

Copeland, H. A., "Some Characteristics of Three Tests Used to Predict Clerical Success." *Journal of Applied Psychology,* 1936, **20,** 461–470.

Corliss, R., "Poor War Personnel Work." *Personnel Journal,* 1942, **21,** 180–188.

Cornell, E. L., and W. W. Coxe, *A Performance Ability Scale.* Yonkers, N. Y.: World Book Company, 1935.

Couve, R., "Der Einzelfall in der Bewahrungskontrolle der psychotechnischen Eignungsuntersuchung." (Individual Follow-up Analysis of Psychotechnically Selected Workers.) *Industrielle Psychotechnik,* 1935, **10,** 33–41.

Cox, J. W., *Mechanical Aptitude: Its Existence, Nature and Measurement.* London: Methuen & Company, Ltd., 1928.

Crissy, W. J. E., and M. J. Wantmann, "Measurement Aspects of the National Clerical Ability Testing Program." *Educational and Psychological Measurement,* 1942, **2,** 37–46.

Cronbach, L. J., "Response Sets and Test Validity." *Educational and Psychological Measurement,* 1946, **6,** 475–495.

Cureton, E. E., "Validation against a Fallible Criterion." *Journal of Experimental Education,* 1933, **1,** 258–263.

Darley, J. G.; D. G. Paterson; and I. E. Peterson, "Occupational Testing and the Public Employment Service." *Bulletins of the Employment Stabilization Research Institute, University of Minnesota,* 1933.

Davidson, C. M., "Analysis of Clerical Tests." *Personnel Journal,* 1937, **16,** 95–98.

———, "Evaluation of Clerical Tests." *Personnel Journal,* 1937, **16,** 57–64.

Davis, F. B., *The AAF Qualifying Examination.* Washington, D. C.: Government Printing Office, 1947.

Deemer, W. L. (ed.), *Records, Analysis, and Test Procedures.* Army Air Forces, Aviation Psychology Program Research Reports, No. 18. Washington, D. C.: Government Printing Office, 1947.

Dellwig, F., "Zehn Jahre Psychotechnik im Eisenhüttenwerk." (Ten Years of Psychotechnics in the Steel Mills.) *Psychotechnische Zeitschrift,* 1931, **6,** 189–190.

Dennison, H. S., and J. S. Keir, "The Selection, Assignment and Training of Workers." *Personnel,* 1930, **7,** 45–51.

Deriaz, W., "Profil psychologique des redresseurs de barres; Étude d'exigencies professionnelles." (Psychological Profile of Bar Straighteners; Study of Professional Exigencies.) *Archives de psychologie,* 1932, **23,** 230–238.

De hai Schwenitz, Dorothea, *Occupations in Retail Stores.* Scranton, Pa.: International Textbook Press, 1937.

De Silva, H. R., and T. W. Forbes, *Driving Testing Results.* Boston: Harvard Traffic Bureau and WPA of Massachusetts, 1937.

Dieck, H., *Zur Eignungsprüfung für den Vermessungstechnikerberuf.* (Aptitude Tests for the Surveyor's Occupation.) *Zeitschrift für angewandte Psychologie,* 1931, **38,** 369–477.

Diehl, H. S.; D. M. Paterson; B. J. Dvorak; and H. P. Longstaff, *A Personnel Study of Duluth Policemen.* Minneapolis: Employment and Stabilization Research Institute, University of Minnesota, 1933.

Division of Standards and Research, Job Analysis and Information Section, *Job Descriptions for Retail Trade.* Washington, D. C.: Government Printing Office, 1938.

Dodge, A. F., "Characteristics of Good Clerks." *Personnel Journal,* 1942, **20,** 324–327.

———, "What Are the Personality Traits of the Successful Clerical Worker?" *Journal of Applied Psychology,* 1940, **24,** 576–585.

Drake, C. A., "The Exit Interview as a Tool of Management." *Personnel,* 1942, **18,** 346–350.

———, "Job Tests." *Personnel Journal,* 1941, **20,** 184–189.

———, *Personnel Selection by Standard Job Tests.* New York: McGraw-Hill Book Company, Inc., 1942.

Drake, F. S., *Manual of Employment Interviewing.* New York: American Management Association, Research Report No. 9, 1945.

Driver, R. S., "The Validity and Reliability of Ratings." *Personnel,* 1941, **17,** 185–191.

———, "The Value of Psychological Tests in Industry." *Personnel,* 1943, **19,** 656–664.

Drury, L. B., "Selecting Employees for Advancement." *Personnel Journal,* 1941, **20,** 166–171.

Du Bois, P. H. (ed.), *The Classification Program.* Army Air Forces, Aviation Psychology Program, Research Reports, No. 2. Washington, D. C.: Government Printing Office, 1947.

Dudycha, G. J., "Dependability and Clerical Aptitudes." *Journal of Applied Psychology,* 1939, **23,** 332–336.

———, "A Suggestion for Interviewing for Dependability Based on Student Behavior." *Journal of Applied Psychology,* 1941, **25,** 227–231.

Dunlap, J. W., "Note on Computation of Biserial Correlations in Item Evaluation." *Psychometrika,* 1936, **1,** 51–58.

Dunn, P. C., *The Selection and Training of Railroad Supervisors.* Cambridge, Mass.: Massachusetts Institute of Technology, 1942.

Dvorak, B. J., "Differential Occupational Ability Patterns." *Bulletins of the Employment Stabilization Research Institute, University of Minnesota,* 1935, **3,** No. 8.

———, "The New USES General Aptitude Test Battery." *Journal of Applied Psychology,* 1937, **31,** 372–376.

———, "The New USES General Aptitude Test Battery." *Occupations,* 1947, **25,** 42–49.

Eastern Commercial Teachers Association, C. A. Read (ed.), *Tenth Yearbook: Measures for Vocational Ability in the Field of Business Education.* Philadelphia: The Association, 1937.

Edgerton, H. A., *Ohio State and Occupations.* Columbus: Ohio State University Press, 1945.

———, and L. E. Kolbe, "The Method of Minimum Variation for the Combination of Criteria." *Psychometrika,* 1936, **1,** 183–187.

Ewart, E. S.; E. Seashore; and J. Tiffin, "A Factor Analysis of an Industrial Merit Rating Scale." *Journal of Applied Psychology,* 1941, **25,** 481–486.

Fay, P. J., and W. C. Middleton, "Relationship between Sales Ability and Ratings of the Transcribed Voices of Salesmen." *Journal of Applied Psychology,* 1942, **26,** 499–510.

Fear, R. A., and B. Jordan, *Employee Evaluation Manual for Interviewers.* New York: The Psychological Corporation, 1943.

Fearing, F. M., "Factors in the Appraisal Interview Considered with Particular Reference to the Selection of Public Personnel." *Journal of Psychology,* 1942, **14,** 131–153.

Fisher, J. F., "Job Evaluation through Point Rating." *Public Personnel Review,* 1944, **5,** 19–26.

Flanagan, J. C., "The Experimental Evaluation of a Selection Procedure." *Educational and Psychological Measurement,* 1946, **6,** 445–466.

———, "Measuring Interest." *Psychological Bulletin,* 1939, **36,** 529–530 (abs.).

———, "Personnel Research in the Army Air Forces." *Public Personnel Review,* 1945, **6,** 33–39.

———, "Psychological Requirements of the Airplane Pilot." *Journal of Aviation Medicine,* 1947, **18,** 521–527.

———, "The Selection and Classification Program for Aviation Cadets (Aircrew—Bombardiers, Pilots, and Navigators)." *Journal of Consulting Psychology,* 1942, **6,** 229–239.

———, "A Short Method for Selecting the Best Combination of Test Items for a Particular Purpose." *Psychological Bulletin,* 1936, **33,** 603–604.

———, "Statistical Methods Related to Test Construction and Evaluation." *Review of Educational Research,* 1941, **11,** 109–130.

——— (ed.), *The Aviation Psychology Program in the Army Air Forces.* Army Air Forces, Aviation Psychology Program Research Reports, No. 1. Washington, D. C.: Government Printing Office, 1948.

Flemming, E. G., and C. W. Flemming, "A Qualitative Approach to the Problem of Improving Selection of Salesmen by Psychological Tests." *Journal of Psychology,* 1946, **21,** 127–150.

Ford, A., "Neutralizing Inequalities in Rating." *Personnel Journal,* 1931, **9,** 466–469.

Forrester, Gertrude, *Occupations; A Selected List of Pamphlets.* New York: The H. W. Wilson Company, 1946.

Fraser, C., "Personalizing the Process of Placement." *Advanced Management,* 1942, **1,** 112–116, 173–179.

Fredenburgh, F. A., "The Gordian Knot of Vocational Guidance." *Journal of Applied Psychology,* 1944, **28,** 53–66.

Freeman, G. L., "Suggestions for Standardized 'Stress' Test." *Journal of General Psychology,* 1945, **32,** 3–11.

Freyd, M., "Selection of Typists and Stenographers; Information on Available Tests." *Personnel Journal,* 1927, **5,** 500–510.

Fryer, D. H., "Intelligence Tests in Industry." *Personnel Journal,* 1935, **13,** 321–323.

———, "Occupational Intelligence Standards." *School and Society,* 1922, **16,** 273–277.

———, "Validating Measures of Interest with Particular Reference to Group Interest Scales." *Personnel Journal,* 1932, **11,** 103–110.

Frykland, V. C., *Trade and Job Analysis.* Milwaukee, Wis.: Bruce Publishing Company, 1942.

Ghiselli, E. E., "A Comparison of the Minnesota Vocational Test for Clerical Workers with the General Clerical Battery of the United States Employment Service." *Journal of Applied Psychology,* 1942, **26,** 75–80.

———, "Tests for the Selection of Inspector-Packers." *Journal of Applied Psychology,* 1942, **26,** 468–476.

———, "The Use of the Minnesota Rate of Manipulation and the O'Connor Finger Dexterity Tests in the Selection of Package Wrappers." *Journal of Applied Psychology,* 1943, **27,** 33–34.

———, "The Use of the Strong Vocational Interest Blank and the Pressey Senior Classification Test in the Selection of Casualty Insurance Agents." *Journal of Applied Psychology,* 1942, **26,** 793–799.

———, and C. W. Brown, *Personnel and Industrial Psychology.* New York: McGraw-Hill Book Company, Inc., 1948.

Goldsmith, A. B., "The Use of Personal History Blank as a Salesmanship Test." *Journal of Applied Psychology,* 1922, **6,** 149–155.

Gradenowitz, A., "Psychology Tests for Motormen." *Electric Railway Journal,* 1922, **59,** 143–146.

Guilford, J. P., "The Discovery of Aptitude and Achievement Variables." *Science,* 1947, **106,** 279–282.

———, "New Standards in Test Evaluation." *Educational and Psychological Measurement,* 1946, **6,** 427–438.

———, *Psychometric Methods.* New York: McGraw-Hill Book Company, Inc., 1936.

——— (ed.), *Printed Classification Tests: Parts I* and *II.* Army Air Forces, Aviation Psychology Program Research Reports, No. 5. Washington, D. C.: Government Printing Office, 1947.

Guttman, L., "A Basis for Scaling Qualitative Data." *American Sociological Review,* 1944, **9,** 139–150.

———, "Mathematical and Tabulation Techniques." *Social Science Research Council Bulletin,* 1941, No. 48, 251–364.

Halsey, George D., *Making and Using Industrial Service Ratings.* New York: Harper & Brothers, 1944.

Hammond, A. M., "Job Analysis and Merit Rating." *Advanced Management,* 1939, **4,** 100–104.

Hampton, P., "A Comparative Study of Certain Personality Traits and Success in Retail Selling." *Journal of Applied Psychology,* 1941, **25,** 431–446.

Handy, U., and T. F. Lentz, "Item Value and Test Reliability." *Journal of Educational Psychology,* 1934, **25,** 703–708.

Hanna, J. V., "Standards Needed in the Testing of Aptitudes." *Occupations,* 1929, **7,** 258–263, 282.

Hardtke, E. F., "Aptitude Testing for Metal-working Occupations." *Psychological Bulletin,* 1945, **42,** 679–694.

Harman, H. H., "On the Rectilinear Prediction of Oblique Factors." *Psychometrika,* 1941, **6,** 29–35.

———, "The Validity of Certain Mechanical Ability Tests for Selecting Cotton Mill Machine Fixers." *Journal of Social Psychology,* 1937, **8,** 279–282.

———, and R. Faubion, "Primary Mental Abilities and Aviation Maintenance Courses." *Educational and Psychological Measurement,* 1941, **1,** 59–66.

——— and ———, "Selection Tests for Aviation Mechanics." *Journal of Consulting Psychology,* 1940, **4,** 104–105.

Harrell, T. W., "A Factor Analysis of Mechanical Ability Tests." *Psychometrika,* 1940, **5,** 17–33.

———, "Testing the Abilities of Textile Workers." *State Engineering Experiment Station Bulletin.* The Georgia Institute of Technology, 1940, **5,** 14.

Hartson, L. D.; H. W. Johnson, II; and M. E. Manson, "An Evaluation of the Tyler-Kimber Study Skills Test." *Journal of Applied Psychology,* 1942, **26,** 594–605.

Harvey, S. M., "A Preliminary Investigation of the Interview." *British Journal of Psychology,* 1938, **28,** 263–287.

Hay, E. N., "Predicting Success in Machine Bookkeeping." *Journal of Applied Psychology,* 1943, **27,** 483–493.

———, and A. M. Blakemore, "The Relationship between Clerical Experience and Scores on the Minnesota Vocational Test for Clerical Workers." *Journal of Applied Psychology,* 1943, **27,** 311–315.

——— and ———, "Testing Clerical Applicants." *Journal of Applied Psychology,* 1942, **26,** 852–855.

Hearnshaw, L. S., "Selection Tests for Paper Sorters." *Human Factor,* 1937, **11,** 146–153.

Heath, C. W.; W. L. Woods; L. Brouha; C. C. Seltzer; and A. V. Bock, "Personal Selection; A Short Method for Selection of Combat Officers." *Annals of Internal Medicine,* 1943, **19,** 415–426.

Heilandt, A., "Die Bewahrung der Eignungsprüfung für angelernte Arbeiter in A-E-G Betrieben." (The Validity of Aptitude Testing for Workers in A-E-G Works.) *Psychotechnische Zeitschrift,* 1932, **7,** 44–49.

Hersey, R. B., *Experimental Application of Psychological Tests and Merit Ratings to Supervisory Selection, Advancement and Training on the Pennsylvania Railroad.* New York: National Industrial Conference Board, Studies in Personnel Policy, 1941, No. 32, 61–69.

Herwig, B., "Eignungsuntersuchungen von Kaufleuten und Beamten, zugleich ein Beitrag zur Methodik der Personlichkeitsdiagnose." (Aptitude Examinations of Salespeople and Clerks, together with a Contribution to the Methodology of Personality Diagnosis.) *Industrielle Psychotechnik,* 1930, **7,** 225–243.

Hildreth, G. H., *A Bibliography of Mental Tests and Rating Scales* (2nd ed.). New York: The Psychological Corporation, 1939.

Hill, Robert L., "Efficiency Ratings." *Personnel Journal,* 1931, **15,** 330–332.

Himmelwirt, H. C., and J. W. Whitfield, "Mean Intelligence Scores of a Random Sample of Occupations." *British Journal of Industrial Medicine,* 1944, **1,** 224–226.

Hobbs, N. (ed.), *Psychological Research on Flexible Gunnery Training.* Army Air Forces, Aviation Psychology Program Research Reports, No. 11. Washington, D. C.: Government Printing Office, 1947.

Hoppock, R., "Occupational Ability Patterns; Some Popular Misconceptions." *Occupations,* 1934, **12,** No. 8, 46–48.

Horst, P., "The Difficulty of a Multiple Choice Test Item." *Journal of Educational Psychology,* 1933, **24,** 229–232.

———, "The Economical Collection of Data for Test Validation." *Journal of Experimental Education,* 1934, **3,** 250–253.

———, "Increasing the Efficiency of Selection Tests." *Personnel Journal,* 1934, **12,** 254–259.

———, "Item Analysis by the Method of Successive Residuals." *Journal of Experimental Education,* 1934, **2,** 254–263.

———, "Item Selection by Means of a Maximizing Function." *Psychometrika,* 1936, **1,** 229–244.

———, "Mathematical Contributions." *Social Science Research Council Bulletin,* 1941, No. 48, 403–447.

———, "Obtaining a Composite Measure from a Number of Different Measures of the Same Attribute." *Psychometrika,* 1936, **1,** 53–60.

——— (ed.), "The Prediction of Personal Adjustment." *Social Science Research Council Bulletin,* 1941, No. 48, 1–156.

Hotelling, Harold, *Analysis of a Complex of Statistical Variables into Principal Components.* Baltimore, Md.: Warwick & York, Inc., 1933.

———, "The Most Predictable Criterion." *Journal of Educational Psychology,* 1935, **26,** 139–142.

———, "Simplified Calculation of Principal Components." *Psychometrika,* 1936, **1,** 27–35.

Hull, C. L., *Aptitude Testing.* Yonkers, N. Y.: World Book Company, 1928.

———, "The Differentiation of Vocational Aptitudes." *Psychological Clinic,* 1930, **19,** 201–209.

Humke, H. L., "Full Use of Employee Ratings." *Personnel Journal,* 1939, **17,** 292–295.

Humm, D. G., and G. W. Wadsworth, "The Humm-Wadsworth Temperament Scale." *Personnel Journal,* 1934, **12,** 314–323.

——— and ———, "Temperament in Industry." *Personnel Journal*, 1943, **21**, 314–322.

Husband, R. W., "The Photograph on the Application Blank." *Personnel Journal*, 1934, **13**, 69–72.

Immig, G., "Vierzehn Jahre Eignungsprüfung bei der Firma Carl Zeiss, Jena." (Fourteen Years of Aptitude Testing in the Firm of Carl Zeiss, Jena.) *Industrielle Psychotechnik*, 1932, **9**, 161–171.

Irwin, R. R., "Lockheed's Full Testing Program." *Personnel Journal*, 1942, **21**, 103–106.

Ivana, V. M., and G. Mayerhofer, "Étude de la profession de dispetcher et méthodes pour la sélection professionnelle dans les services de transports par camions automobiles." (Study of Dispatchers and Methods of Selecting Them for Automobile Trucking.) *Le Travail humain*, 1935, **3**, 297–327.

Jackson, J. H., "Facts Involved in Absenteeism." *Personnel Journal*, 1944, **22**, 289–295.

Jackson, J. J., "Reprimanding Employees." *Personnel Journal*, 1941, **20**, 73–80.

Jacobs, A. T., *How to Use Handicapped Workers*. Deep River, Conn.: National Foremen's Institute, Inc. [1946].

Jacobsen, E. E., "An Evaluation of Certain Tests in Predicting Mechanic Learner Achievement." *Educational and Psychological Measurement*, 1943, **3**, 259–268.

Jenkins, J. G., *Psychology in Business and Industry*. New York: John Wiley & Sons, Inc., 1935.

———, "The Questionnaire as a Research Instrument." *Transactions of the New York Academy of Science*, 1940, Ser. II, **2**, No. 5.

Johnson, H. M., "General Rules for Predicting the Selectivity of a Test." *American Journal of Psychology*, 1942, **55**, 436–442.

———, "Maximal Selectivity, Correctivity and Correlation Obtainable in 2 × 2 Contingency-Tables." *American Journal of Psychology*, 1945, **58**, 65–68.

———, "Some Neglected Principles in Aptitude Tests." *American Journal of Psychology*, 1935, **47**, 159–165.

———, "A Useful Interpretation of Pearsonian r in 2 × 2 Contingency-Tables." *American Journal of Psychology*, 1944, **57**, 236–242.

Jurgensen, C. E., "Extension of the Minnesota Rate of Manipulation Test." *Journal of Applied Psychology*, 1943, **27**, 164–169.

———, "Selected Factors Which Influence Job Preferences." *Journal of Applied Psychology*, 1947, **31**, 553–564.

———, "A Test for Selecting and Training Industrial Typists." *Educational and Psychological Measurement*, 1942, **2**, 409–426.

Kandel, I. L., *Professional Aptitude Tests in Medicine, Law and Engineering*. New York: Teachers College, Columbia University, 1940.

Katzenstein, B., "Die eignungspsychologische Erfassung des Arbeitscharakters. Problematik und Methodik unter besonderer Berücksichtigung der Eignungsuntersuchung von Büroangestellten." (The Psychology of Aptitude with Special Reference to Types of Work. Problems and Methods, with Special Attention to Aptitude Tests of Office Workers.) Leipzig: J. A. Barth, 1932.

Keller, H., and C. C. Weber, "Germany's Elimination Test for Dentists." *Journal of Applied Psychology*, 1932, **16**, 465–475.

Kerr, W. A., "Labor Turnover and Its Correlates." *Journal of Psychology*, 1947, **31**, 366–371.

Kingsbury, F. A., "Analyzing Ratings and Training Raters." *Journal of Personnel Research*, 1922, **1**, 377–383.

———, "Classification of Office Positions." *Personnel Journal*, 1933, **12**, 91–97.

———, "Psychological Tests for Executives." *Personnel*, 1933, **9**, 121–130.

Kirby, W. J., and E. M. Westburgh, "A Job Evaluation Plan That Works." *Personnel*, 1944, **20**, 344–356.

Klugman, S. F., "Test Scores for Clerical Aptitude and Interests before and after a Year of Schooling." *Journal of Genetic Psychology*, 1944, **65**, 89–96.

Knauber, A. J., *Knauber Art Ability Test*. Cincinnati: A. J. Knauber, 1932.

Knauft, E. B., "A Classification and Evaluation of Personnel Rating Methods." *Journal of Applied Psychology*, 1947, **31**, 617–625.

Knight, Frederick B., and Raymond H. Franzen, "Pitfalls in Rating Schemes." *Journal of Educational Psychology*, 1922, **13**, 204–213.

Knowles, A. S., "Measuring Salesmen's Performance." *Advanced Management*, 1941, **6**, 50–57.

———, *Merit Rating in Industry*. Boston: Northeastern University [1940].

———, "Merit Rating and Labor Management." *Personnel*, 1940, **17**, 29–42.

Koepke, C. A., "A Job Analysis of Manufacturing Plants in Minnesota." *Bulletins of the Employment Stabilization Research Institute, University of Minnesota*, 1934, **2**, No. 8.

———, "A Job Analysis Survey; Its Procedures and Some of Its Results." *Occupations*, 1934, **12**, No. 10, 15–34.

Kohler, O., "Eignungsprüfung im Fabrikbetrieb." (Aptitude Testing in Industry.) *Industrielle Psychotechnik*, 1932, **9**, 272–282.

Koran, S. W., "Performance Testing in Public Personnel Selection." *Educational and Psychological Measurement*, 1941, **1**, 233–252, 365–386.

Korner, E., "Stellung und Methodik der Konzentrationsprüfung im Rahmen der schutzpolizeilichen Eignungsprüfverfahren." (The Place and Method of the Concentration Test in the Aptitude Testing Procedure for Policemen.) *Industrielle Psychotechnik*, 1930, **7**, 247–254.

Kornhauser, A. W., and R. S. Schultz, "Research on

Selection of Salesmen." *Journal of Applied Psychology*, 1941, **25**, 1–5.

Kruk, W., "Psikhoteknika doboru pracownikow komunikaoji w Wiedniu." (The Psychotechnical Selection of Transport Workers in Vienna.) *Psikhoteknika*, 1930, **4**, 105–123.

Kuder, G. F., "The Construction of Valid Test Items." Columbus, Ohio: Ohio State University Library, 1937 (unpublished).

———, *Revised Manual for the Kuder Preference Record*. Chicago: Science Research Associates, 1946.

Kugelgen, W., "Eignungsprüfung für den kaufmannischen Büroangestellten im Kleinbetrieb." (Aptitude Tests for Office Employees in Small Commercial Establishments.) *Psychotechnische Zeitschrift*, 1932, **7**, 70–84.

Kurtz, A. K., "Recent Research in the Selection of Life Insurance Salesmen." *Journal of Applied Psychology*, 1941, **25**, 11–17.

———, "The Use of the Doolittle Method in Obtaining Related Multiple Correlation Coefficients." *Psychometrika*, 1936, **1**, 45–51.

Kushnick, W. H., "A Guide to Personnel Counseling." *Personnel*, 1943, **20**, 139–153.

Lahy, J. N., "Méthode de mise au point et d'étalonnage d'un test d'aptitude professionelle: le test du tourneur." (Method of Selecting and Standardizing a Test of Professional Aptitude: The Test for Lathe Operators.) *Journal de psychologie*, 1927, **24**, 356–369.

———, "La Sélection professionelle des aiguilleurs." *Le Travail humain*, 1934, **2**, 15–38.

———, "La Sélection psycho-physiologique des machinistes de la Société des transports en commun de la region Parisienne." *L'année psychologique*, 1924, **25**, 106–172.

Law, F. W., and W. Raphael, "Seven Years' Experience of Tests for Sales Assistants." *Human Factor*, 1937, **11**, 137–145.

Lawshe, C. H., Jr., "A Nomograph for Estimating the Validity of Test Items." *Journal of Applied Psychology*, 1942, **26**, 846–849.

———, "The Purdue Industrial Training Classification Test." *Journal of Applied Psychology*, 1942, **26**, 770–776.

Lawshe, C. H., Jr., and G. A. Satter, "Studies in Job Evaluation: 1. Factor Analyses of Point Ratings for Hourly-Paid Jobs in Three Industrial Plants." *Journal of Applied Psychology*, 1944, **28**, 189–198.

———, "Studies in Job Evaluation: 2. The Adequacy of Abbreviated Point Ratings for Hourly Paid Jobs in Three Industrial Plants." *Journal of Applied Psychology*, 1945, **29**, 177–184.

———, and A. A. Maleski, "Studies in Job Evaluation: 3. An Analysis of Point Ratings for Salary Paid Jobs in an Industrial Plant." *Journal of Applied Psychology*, 1946, **30**, 117–128.

———, and S. L. Alessi, "Studies in Job Evaluation: 4. Analysis of Another Point Rating Scale for Hourly Paid Jobs and the Adequacy of an Abbreviated Scale." *Journal of Applied Psychology*, 1946, **30**, 310–319.

———, and R. F. Wilson, "Studies in Job Evaluation: 5. An Analysis of the Factor Comparison System As It Functions in a Paper Mill." *Journal of Applied Psychology*, 1946, **30**, 426–434.

——— and ———, "Studies in Job Evaluation: 6. The Reliability of Two Point Rating Systems." *Journal of Applied Psychology*, 1947, **31**, 355–365.

———; E. E. Dudek; and R. F. Wilson, "Studies of Job Evaluation: 7. A Factor Analysis of Two Point Rating Methods of Job Evaluation." *Journal of Applied Psychology*, 1948, **32**, 118–129.

———, and A. C. Motoux, *Industrial Training Classification Tests: Forms A and B*. Chicago: Science Research Associates, 1942.

Laycock, S. R., and N. B. Hutcheon, "A Preliminary Investigation into the Problem of Measuring Engineering Aptitude." *Journal of Educational Psychology*, 1939, **33**, 280–289.

Life Agency Management Association, *How Well Does the Aptitude Index Work?* Hartford: The Association, 1941.

———, *Measuring Aptitude for Life Insurance Selling*, Hartford: The Association, 1938.

———, *Selection of Agents*. Hartford: The Association, 1937.

Lennon, R. T., and B. Baxter, "Predictable Aspects of Clerical Work." *Journal of Applied Psychology*, 1945, **29**, 1–13.

Link, H. C., *Employment Psychology*. New York: The Macmillan Company, 1919.

Locke, N., "Employee Ratings." *Personnel Journal*, 1943, **21**, 282–288.

Long, W. F., and C. H. Lawshe, Jr., "The Effective Use of Manipulative Tests in Industry." *Psychological Bulletin*, 1947, **44**, 130–148.

Lorge, I., "The Prediction of Vocational Success." *Personnel Journal*, 1933, **12**, 189–197.

Louttit, C. M., "Psychological Examining in the United States Navy; An Historical Summary." *Psychological Bulletin*, 1942, **39**, 227–239.

Lovett, R. F., and M. W. Richardson, "Selecting Sales Personnel: 1. The Significance of Various Types of Test Material." *Personnel Journal*, 1934, **12**, 248–253.

Mace, C. A., *Incentives; Some Experimental Studies*. London: Industrial Health Research Board Report No. 72, 1935.

Mandell, M., "Civil Service Oral Interviews." *Personnel Journal*, 1940, **18**, 373–382.

———, "Testing for Administrative and Supervisory Positions." *Educational and Psychological Measurement*, 1945, **5**, 217–228.

Manson, G. E., "What Can the Application Blank Tell?" *Journal of Personnel Research*, 1925, **4**, 74–75.

Martin, E. M., "Experiment in New Methods of Selecting

Policemen." *National Municipal Review*, 1923, **12**, 671–681.

Mason, C. W., and G. U. Cleeton, "Measuring Executive Ability." *Personnel Journal*, 1935, **13**, 277–279.

Mayer, T., and O. Storzinger, "Zur Berufseignung des Schuhmachers." (On Aptitude Testing for Shoemakers.) *Psychotechnische Zeitschrift*, 1932, **7**, 113–117.

McAdory, M., *The Construction and Validation of an Art Test*. New York: Teachers College, Columbia University, 1929.

———, and E. Woodyard, *Validity and Standardization of the McAdory Art Test*. New York: Teachers College, Columbia University, 1933.

McClure, J. A., "The Development and Standardization of a New Type Test of Peripheral Vision." *Journal of Applied Psychology*, 1946, **30**, 340–353.

McDaniel, J. W., and W. A. Reynolds. "A Study of the Use of Mechanical Aptitude Tests in the Selection of Trainees for Mechanical Occupations." *Educational and Psychological Measurement*, 1944, **4**, 191–197.

McMurry, R. N., and D. L. Johnson, "Development of Instruments for Selecting and Placing Factory Employees." *Advanced Management*, 1945, **10**, 113–120.

Mcdrow, W., "Beobachtungstechnik." (Interview Techniques.) *Industrielle Psychotechnik*, 1933, **10**, 327–332.

———, "Psychotechnische Eignungsuntersuchungen bei der Deutschen Reichspost." (Psychotechnical Determinations of Qualifications for German Postal Employees.) *Industrielle Psychotechnik*, 1933, **10**, 225–228.

Meier, N. C., "Factors in Artistic Aptitudes: Final Summary of a Ten-Year Study of a Special Ability." *Psychological Monographs*, 1939, **51**, No. 5, 140–158.

———, *The Meier Art Tests: I. Art Judgment*. Iowa City: University of Iowa, Bureau of Educational Research, 1940.

Melsher, J. J., and I. Weinstock, "Rating of Supervisors by Subordinates." *Personnel Journal*, 1940, **19**, 37–40.

Michalewa, A. N., and A. A. Kujasewa, "Untersuchung zur Eignungsprüfung für den Schneiderberuf." (Investigation on Aptitude Testing for Tailors.) *Psychotechnische Zeitschrift*, 1930, **5**, 14–19.

Miller, N. E. (ed.), *Psychological Research on Pilot Training*. Army Air Forces, Aviation Psychology Program Research Reports, No. 8. Washington, D. C.: Government Printing Office, 1947.

Mingle, G., "Police Personnel Evaluation and Development." *Journal of Criminal Law and Criminology*, 1945, **36**, 277–289.

Moede, W., "Eignungsprüfung für kaufmannische Lehrlinge und Angestellte." (Aptitude Tests for Mercantile Apprentices and Employees.) *Industrielle Psychotechnik*, 1930, **7**, 1–17.

———, "Fehldiagnosen in der Eignungsfeststellung und Fehlurteile in Prüfungen überhaupt." (Wrong Diagnosis of Aptitudes and Causes of Errors in Testing in General.) *Industrielle Psychotechnik*, 1931, **8**, 321–333.

Moore, H., "Problems and Methods in Job Evaluation." *Journal of Consulting Psychology*, 1944, **8**, 90–99.

———, *Psychology for Business and Industry* (2nd ed.). New York: McGraw-Hill Book Company, Inc., 1942.

——— (ed.), *Experience with Employment Tests*. New York: National Industrial Conference Board, Studies in Personnel Policy, No. 32, 1941.

Morrisett, L. N., "Letters of Recommendation." *Teachers College, Columbia University, Contributions to Education*, 1935, No. 641.

Mosier, C. I., and J. V. McQuitty, "Methods of Item Validation and Abacs for Item Test Correlation and Critical Ratio of Upper-lower Difference." *Psychometrika*, 1940, **5**, 57–65.

National Retail Dry Goods Association, *The Development of Personnel Testing in Retailing*. New York: The Association, 1938.

———, *Testing as an Aid in Replacements*. New York: The Association, 1941.

Navy, Bureau of Naval Personnel, Training, Standards and Curriculum Division, Test and Research Section, "Psychological Test Construction and Research in the Bureau of Naval Personnel; Validity of the Basic Test Battery, Form 1, for Selection for Ten Types of Elementary Naval Training Schools." *Psychological Bulletin*, 1945, **42**, 638–644.

Nestor, I. M., "Vocational Tests on the European Railways." *Human Factor*, **7**, 11–23; **8**, 51–58.

Newman, S. H.; J. M. Bobbitt; and D. C. Camerson, "The Reliability of the Interview Method in an Officer Candidate Evaluation Program." *The American Psychologist*, 1946, **1**, 103–109.

Ohman, O. A., "Research on the Selection of Salesmen at the Tremco Manufacturing Company." *American Management Association, Marketing Series*, No. 45.

O'Rourke, L. J., "Office Employment Tests." *American Management Association, Office Management Service*, 1930, No. 46, 1–36.

———, *Opportunities in Government Employment* (rev. ed.). Garden City, N. Y.: Garden City Publishing Company, Inc., 1941.

———, "Scientific Personnel Selection in the United States Civil Service." *Occupations*, 1934, **12**, 29–39.

———, "Selection Standards in Training in Crime Detection." *International Association of Chiefs of Police Proceedings*, 1933, **40**, 70–75.

Otis, J. L., "The Criterion," Chap. 5 in W. H. Stead, et al., *Occupational Counseling Techniques*. New York: American Book Company, 1940.

———, "Improvement of Employment Interviewing." *Journal of Consulting Psychology*, 1944, **8**, 64–69.

———, "The Personnel Research Institute of Western Reserve University." *Journal of Consulting Psychology*, 1946, **10**, 131–135.

———, "Procedures for the Selection of Salesmen for a Detergent Company." *Journal of Applied Psychology*, 1941, **25**, 30–40.

———, and R. H. Leukart, *Job Evaluation; A Basis for*

Sound Wage Administration. New York: Prentice-Hall, Inc., 1948.

———, and K. R. Smith, "The Job Psychograph in Job Analysis." *Occupations,* 1934, **12,** 47–56.

Owen, H. F.; C. C. Stevason; H. G. McComb; and C. D. Hume, *Technical Information Test for Machinists and Machine Operators.* Chicago: Test Service Division, Science Research Associates, 1942.

Parrish, D. V., "The Use of Psychological Tests in Industry." *Labor Management,* 1943, **25,** No. 267, 36–38.

Paterson, D. G., "Methods of Rating Human Qualities." *Annals of the American Academy of Political and Social Science,* 1923, **110,** 81–93.

——— (ed.), "Analysis of the Individual." *Occupations,* 1934, **12,** 1–91.

———; J. G. Darley; and R. M. Elliott, *Men, Women and Jobs.* Minneapolis, Minn.: University of Minnesota Press, 1936.

———; R. M. Elliott; et al., *Minnesota Mechanical Ability Tests.* Minneapolis, Minn.: University of Minnesota Press, 1930.

Phoenix, *Selecting the Successful Salesman.* Hartford, Conn.: Phoenix Mutual Life Insurance Company, 1937.

Picard, C. O., "Absentee Control Plans." *Personnel Journal,* 1945, **23,** 271–276.

Piddington, R., "Psychological Tests for Clerical Workers." *Australasian Journal of Psychology,* 1930, **8,** 59–68.

Pike, F. H., "A Naturalistic Definition of Life." *Anatomical Record,* 1935, **64,** Supplement 1.

Pond, M., "Selective Placement of Metal Workers: III. Selection of Toolmaking Apprentices." *Journal of Personnel Research,* 1927, **5,** 452–466.

———, "Tests for the Selection of Office Employees." *Personnel,* 1941, **17,** 199–208.

———, and M. A. Bills, "Intelligence and Clerical Jobs; Two Studies of Relation of Test Score to Job Held." *Personnel Journal,* 1933, **12,** 41–56.

Powell, N. J., and H. Levine, "Reliability of the Civil Service Oral Examination." *American Journal of Psychology,* 1942, **55,** 385–393.

Pressel, E., "Aufgaben der Fahigkeitsauslese der Gesellschaft in Eisenhüttenwerken." (Problems of Aptitude Testing of Steel Mill Workers.) *Industrielle Psychotechnik,* 1935, **12,** 148–157.

Probst, J. B., "An Experimental Test in Evaluating the Most Essential Qualifications for the Position of Office Clerk." *Journal of Applied Psychology,* 1932, **16,** 644–650.

———, *Service Ratings.* Chicago: Bureau of Public Personnel Administration, 1931.

Raimy, V. C., "Self Reference in Counseling Interviews." *Journal of Consulting Psychology,* 1948, **12,** 153–163.

Reichsverband der Deutschen Dentisten, "Eignungsprüfung beim Reichsverband der Deutschen Dentisten E.V." (Aptitude Testing in the National Association of Dentists.) *Industrielle Psychotechnik,* 1931, **8,** 347–351.

Remmers, H. H., and G. W. File, "Studies in Supervising Evaluation." *Journal of Applied Psychology,* 1943, **30,** 421–425.

———, and J. W. Schell, "Testing the O'Connor Wiggly Block Test." *Personnel Journal,* 1933, **12,** 155–159.

Richards, E. A., and E. B. Rubin, *How to Select and Direct the Office Staff.* New York: Harper & Brothers, 1941.

Richardson, M. W., "The Combination of Measures." *Social Science Research Council Bulletin,* 1941, No. 48, 377–402.

———, "The Interpretation of a Test Validity Coefficient in Terms of Increased Efficiency of a Selected Group of Personnel." *Psychometrika,* 1944, **9,** 245–248.

———, "Notes on the Rationale of Item Analysis." *Psychometrika,* 1936, **1,** 69–76.

———, "The Relation between the Difficulty and the Differential Validity of a Test." *Psychometrika,* 1936, **1,** 33–49.

———, "Selection of Army Officers," in *New Methods in Applied Psychology.* College Park, Md.: Maryland Conference on Military Psychology, University of Maryland, 1947.

———, and G. F. Kuder, "Making a Rating Scale That Measures." *Personnel Journal,* 1933, **12,** 36–40.

Riegel, J. W., *The Selection and Development of Prospective Foremen.* Ann Arbor, Mich.: University of Michigan Press, 1941.

Robinson, J. B., and R. M. Bellows, "Characteristics of Successful Dental Students." *Journal of the American Association of College Registrars,* 1941, **16,** 109–122.

Rogers, R. C., "Analysis of Two Point-Rating Job Evaluation Plans." *Journal of Applied Psychology,* 1946, **30,** 579–585.

Ross, L. W., "Results of Testing Machine-Tool Trainees." *Personnel Journal,* 1943, **21,** 363–367.

Rossett, N. E., and P. Arakelian, "A Test Battery for the Selection of Dial Switchmen." *Journal of Applied Psychology,* 1939, **23,** 358–366.

Rugg, H. O., "Is the Rating of Human Character Practicable?" *Journal of Educational Psychology,* 1921, **12,** 425–438, 485–501; 1922, **13,** 30–42, 81–93.

Rundquist, E. A., "Development of an Interview for Selection Purposes," in *New Methods in Applied Psychology.* College Park, Md.: Maryland Conference on Military Psychology, University of Maryland, 1947.

———, "Form of Statement in Personality Measurement." *Journal of Educational Psychology,* 1940, **31,** 135–147.

Ryan, T. A., "Merit Rating Criticized." *Personnel Journal,* 1945, **24,** 6–15.

———, and B. R. Johnson, "Interest Scores in the Selection of Salesmen and Servicemen; Occupational vs. Ability-Group Scoring Keys." *Journal of Applied Psychology,* 1942, **26,** 543–562.

Saetveit, J. G.; D. Lewis; and C. E. Seashore, *The Revision of the Seashore Measures of Musical Talents.* Iowa City: The University of Iowa Press, 1940.

Sagebeer, Richard, "Identifying Patterns of Ability." *Educational Record Supplement,* 1938, **19,** 172–178.

Schenet, N. G. "An Analysis of Absenteeism in One War Plant." *Journal of Applied Psychology,* 1945, **29,** 27–39.

Schneidler, G. G., and D. G. Paterson, "Sex Differences in Clerical Aptitude." *Journal of Educational Psychology,* 1942, **33,** 303–309.

Schoene, G., "Beförderung und Vorgesetztenauslese," (The Advancement and Selection of Executives.) *Industrielle Psychotechnik,* 1935, **12,** 175–182.

Schulte, R., *Eignungsprüfung, Arbeitserleichterung, Ermüdungsminderung für die Arbeit an Buchungsmaschinen.* (Aptitude Tests, Labor Facilitation and Lessening of Fatigue in Work on Bookkeeping Machines.) Berlin: Borcherts Verlag für Schreibmaschinen-Literatur, 1931.

Scott, W. D.; R. C. Clothier; S. B. Mathewson; and W. R. Spriegel. *Personnel Management; Principles, Practices and Point of View* (3rd ed.). New York: McGraw-Hill Book Company, Inc., 1941.

Scudder, K. J., "The Predictive Value of General Intelligence Tests in the Selection of Junior Accountants and Bookkeepers." *Journal of Applied Psychology,* 1929, **13,** 1–18.

Seashore, C. E. (ed.), *Studies in the Psychology of Music.* Iowa City: University of Iowa Press, 1932–1937.

Shartle, C. L., "Development in Occupational Classifications." *Journal of Consulting Psychology,* 1946, **10,** 81–84.

———, "Fitting Workers to Jobs." *Personnel Journal,* 1942, **20,** 328–332.

———, *Occupational Information.* New York: Prentice-Hall, Inc., 1946.

———, "Occupations in Psychology." *American Psychologist,* 1946, **1,** 559–582.

———, "A Selection Test for Electrical Troublemen." *Personnel Journal,* 1932, **11,** 177–183.

———, and Staff, Division of Occupational Analysis, War Manpower Commission, "Ten Years of Occupational Research, 1934–1944." *Occupations,* 1944, **22,** No. 7.

———; B. J. Dvorak, et al., "Occupational Analysis Activities in the War Manpower Commission." *Psychological Bulletin,* 1943, **40,** 701–713.

Shen, E., "The Influence of Friendship upon Personal Ratings." *Journal of Applied Psychology,* 1925, **9,** 66–88.

Sisson, E. D., "Forced-Choice—The New Army Rating." *Personnel Psychology,* 1948, **1,** 365–381.

Smith, E. E., "Foreman Selection through Merit Rating." *Personnel,* 1944, **20,** 270–277.

Smith, F. F., "Objectivity as a Criterion for Estimating the Validity of Questionnaire Data." *Journal of Educational Psychology,* 1935, **26,** 481–496.

Smith, M., "The Relationship between Item Validity and Test Validity." *Teachers College, Columbia University, Contributions to Education,* 1934, No. 621.

Smyth, R. C., and M. J. Murphy, *Job Evaluation and Employee Rating.* New York: McGraw-Hill Book Company, Inc., 1946.

Stanton, Hazel, *Measurement of Musical Talent.* Iowa City: University of Iowa Press, 1935.

Starr, R. B., and R. J. Greenly, "Merit Rating Survey Findings." *Personnel Journal,* 1939, **17,** 378–384.

Stead, W. H.; C. L. Shartle; and Associates, *Occupational Counseling Techniques.* New York: American Book Company, 1940.

Steel, M.; B. Balinsky; and H. Lang, "A Study on the Use of a Work Sample." *Journal of Applied Psychology,* 1945, **29,** 14–21.

Stewart, H., "AGCT Scores of Army Personnel Grouped by Occupation." *Occupations,* 1947, **26,** 5–41.

Stigers, M. F., and E. G. Reed, *The Theory and Practice of Job Rating* (2nd ed.). New York: McGraw-Hill Book Company, Inc., 1944.

Stokes, T. M., "Selection Research in a Sales Organization." *Journal of Applied Psychology,* 1941, **25,** 41–47.

Stott, M. B., "A Preliminary Experiment in the Occupation Analysis of Secretarial Work." *The Human Factor,* 1935, **9,** 249–258.

Strong, E. K., Jr., "The Interests of Forest Service Men." *Educational and Psychological Measurement,* 1945, **5,** 157–171.

———, "Interests and Sales Ability." *Personnel Journal,* 1934, **13,** 204–216.

Stuit, D. B. (ed.), *Psychological Research and Test Development in the Bureau of Naval Personnel.* Princeton, N. J.: Princeton University Press, 1947.

Symonds, P. M., "On the Loss of Reliability in Ratings Due to the Coarseness of the Scale." *Journal of Experimental Psychology,* 1924, **12,** 456–461.

———, "Securing Rapport in Interviewing." *Teachers College Record,* 1938, **39,** 707–722.

Tead, O., "Employe Counseling; A New Personnel Assignment—Its Status and Its Standards." *Advanced Management,* 1943, **8,** 97–103.

Teegarden, L., "Occupational Differences in Manipulative Performance of Applicants at a Public Employment Office." *Journal of Applied Psychology,* 1943, **27,** 416–437.

Terman, L. M., *The Measurement of Intelligence.* Boston: Houghton Mifflin Company, 1916.

———, and M. Merrill, *Measuring Intelligence.* Boston: Houghton Mifflin Company, 1937.

Thompson, C. E., "Motor and Mechanical Abilities in Professional Schools." *Journal of Applied Psychology,* 1942, **26,** 24–37.

Thompson, L. A., et al., *Interview Aids and Trade Questions for Employment Offices.* New York: Harper & Brothers, 1936.

Thompson, W. N., "An Experimental Study of the Ac-

curacy of Typical Speech Rating Techniques." *Speech Monographs,* 1944, **11,** 65–79.

Thomson, G. H., *The Factorial Analysis of Human Ability.* Boston: Houghton Mifflin Company, 1939.

Thorndike, E. L., "A Constant Error in Psychological Rating." *Journal of Applied Psychology,* 1920, **4,** 25–29.

———, "Fundamental Theorems in Judging Men." *Journal of Applied Psychology,* 1918, **2,** 67–76.

Thorndike, R. L., *Research Problems and Techniques.* Washington, D.C.: Government Printing Office, 1947.

———, *Research Problems and Techniques in Personnel Psychology.* New York: John Wiley & Sons, 1949.

Thouless, R. H., "Test Unreliability and Function Fluctuation." *British Journal of Psychology,* 1936, **26,** 325–343.

Thurstone, L. L., *The Reliability and Validity of Tests.* Ann Arbor: Edwards Bros., Inc., 1935.

———, and T. G. Thurstone, *Factorial Studies of Intelligence.* Chicago: University of Chicago Press, Psychometric Monographs, 1941, No. 2.

Tiffin, J., *Industrial Psychology* (2nd ed.). New York: Prentice-Hall, Inc., 1947.

———, and R. J. Greenly, "Employee Selection Tests for Electrical Fixture Assemblers and Radio Assemblers." *Journal of Applied Psychology,* 1939, **23,** 240–263.

———, and C. H. Lawshe, Jr., "The Adaptability Test; A Fifteen Minute Mental Alertness Test for Use in Personnel Allocation." *Journal of Applied Psychology,* 1943, **27,** 152–163.

Toolan, W. T., "Merit Examination Cut-Offs and Weights." *Journal of Applied Psychology,* 1945, **29,** 493–497.

Toops, H. A., "Code Numbers as a Means of Scoring Group-administered Performance Test Products." *Journal of Applied Psychology,* 1942, **26,** 136–150.

———, *Computational Statistics* (to be published).

———, "The Criterion." *Educational and Psychological Measurement,* 1944, **4,** 271–297.

———, "The *L*-Method." *Psychometrika,* 1941, **6,** 263–264.

———, "A Note on Item Selection." *Ohio College Association Bulletin,* 1936, No. 103, 2207–2212.

———, "Philosophy and Practice of Personnel Selection." *Educational and Psychological Measurement,* 1945, **5,** 95–124.

———, "Sifting Civil Service Applicants by the Successive Hurdles Method." *Personnel Journal,* 1932, **11,** 216–219.

———, "Some Concepts of Job Families and Their Importance in Placement." *Educational and Psychological Measurement,* 1945, **5,** 195–216.

———, and G. F. Kuder, "Test Construction and Statistical Interpretation." *Review of Educational Research,* 1935, **5,** 229–241.

Treat, K., "Tests for Garment Machine Operators." *Personnel Journal,* 1929, **8,** 19–28.

Tucker, L. R., "Maximum Validity of a Test with Equivalent Items." *Psychometrika,* 1946, **11,** 1–13.

Uhrbrook, R. S., "Analysis of Employment Interviews." *Personnel Journal,* 1933, **12,** 98–101.

———, "Job Analysis in Industry." *Occupation,* 1934, **12,** 69–74.

———, and M. W. Richardson, "Item Analysis; The Basis for Constructing a Test for Forecasting Supervisory Ability." *Personnel Journal,* 1933, **12,** 141–154.

US Employment Service, Department of Labor, *Dictionary of Occupational Titles.* Washington, D. C.: Government Printing Office, 1939.

———, ———, "How to Cut Absenteeism." *Personnel Journal,* 1943, **22,** 74–79.

———, ———, *Manual of Instructions for Administering and Interpreting the Interest Check List.* Washington, D. C.: Government Printing Office, 1946.

Valentiner, T., "Eignungsprüfungen für die Bremer Grossindustrie." (Aptitude Testing for the Large Industries of Bremen.) *Industrielle Psychotechnik,* 1933, **10,** 283–287.

———, "Ueber die Erhöhung des prognostischen Wertes der Eignungsprüfungen." (Concerning the Raising of the Prognostic Value of Aptitude Tests.) *Zeitschrift für angewandte Psychologie,* 1932, **41,** 499–507.

Van Biervliet, J. J., "Recherches sur les aptitudes à la profession de couturière." (Studies on Aptitudes for the Occupation of Dressmaker.) *Bulletin trimestriel, office d'orientation professional de Bruxelles,* 1932, **11,** 4–7.

Varnum, W. H., *Selective Art Aptitude Test.* Scranton, Pa.: International Textbook Company, 1940.

Vernon, P. E., "Research on Personnel Selection in the Royal Navy and the British Army." *American Psychologist,* 1947, **2,** 35–51.

Viteles, M. S., "The Aircraft Pilot: Five Years of Research; A Summary of Outcomes." *Psychological Bulletin,* 1945, **42,** 489–526.

———, "Psychological Methods in the Selection of Policemen in Europe." *Annals of the American Academy of Political and Social Science,* 1929, **146,** 160–165.

———, "A Psychologist Looks at Job Evaluation." *Personnel,* 1941, **17,** 165–176.

———, and W. R. Smith, "The Prediction of Vocational Aptitude and Success from Photographs." *Journal of Experimental Psychology,* 1932, **15,** 615–629.

Vollmer, A., *The Selection and Distribution of Police Personnel.* Chicago: City Manager Yearbook, 1931, pp. 140–148.

Wadsworth, G. W., Jr., "Hidden Abilities of Clerical Workers." *American Management Association, Office Management Series,* 1939, No. 88, 3–17.

———, "Personality Tests in the Personnel Program."

American Management Association, Personnel Series, 1941, No. 50, 4017.

War Department, *Civilian Occupational Classification of Enlisted Personnel,* Technical Manual 12-406. Washington, D. C.: Government Printing Office, 1944.

———, *Personnel Classification Tests,* Technical Manual 12-260. Washington, D. C.: Government Printing Office, 1946.

War Manpower Commission, Division of Occupational Analysis, "Factor Analysis of Occupational Aptitude Tests." *Educational and Psychological Measurement,* 1945, **5**, 147-155.

Warren, S. L., "Help Wanted—Personnel Director." *Personnel Journal,* 1948, **26**, 336-339.

Watkins, J. G., "The Use of Service Ratings for Employee Guidance." *Public Personnel Review,* 1943, **4**, 168-172.

Welker, E. L., and T. W. Harrell, "Predictive Value of Certain 'Law Aptitude' Tests." *Educational and Psychological Measurement,* 1942, **2**, 201-207.

Wherry, R. H., and D. H. Fryer, "Buddy Ratings: Popularity Contest or Leadership Criteria?" *Personnel Psychology,* 1949, **2**, 147-159.

Wherry, R. J., "An Approximation Method for Obtaining a Maximized Multiple Criterion." *Psychometrika,* 1940, **5**, 109-115.

———, "Maximal Weighting of Qualitative Data." *Psychometrika,* 1944, **9**, 263-266.

———, "A Modification of the Doolittle Method; A Logarithmic Solution." *Journal of Educational Psychology,* 1932, **23**, 455-459.

———, "Test Selection and Suppressor Variables." *Psychometrika,* 1946, **11**, 239-247.

———, and R. H. Gaylord, "The Concept of Test and Item Reliability in Relation to Factor Pattern." *Psychometrika,* 1943, **8**, 247-264.

——— and ———, "Factor Pattern of Test Items and Tests as a Function of the Correlation Coefficient; Content, Difficulty and Constant Error Factors." *Psychometrika,* 1944, **9**, 237-244.

——— and ———, "Test Selection with Integral Gross Score Weights." *Psychometrika,* 1946, **11**, 173-183.

Williams, G., "The Possibilities of the Rorschach Technique in Industry." *Personnel,* 1947, **24**, 224-231.

Williamson, E. G., and J. G. Darley, "Matching Abilities to Jobs." *Personnel Journal,* 1935, **13**, 344-352.

Winkler, K., "Prüfung der Eignung für anstrengende Seharbeit." (Testing Aptitude for Performing Strenuous Visual Work.) *Psychotechnische Zeitschrift,* 1933, **8**, 69-79.

Wittenborn, J. R., "Mechanical Ability; Its Nature and Measurement: 1. An Analysis of the Variables Employed in the Preliminary Minnesota Experiment; 2. Manual Dexterity." *Educational and Psychological Measurement,* 1945, **5**, 241-260, 395-409.

Wonderlic, E. F., "Diagnostic Interviewers Guide." *Journal of Applied Psychology,* 1939, **23**, 537-546.

———, "Improving Interview Techniques." *Personnel,* 1942, **18**, 232-238.

Woodworth, R. S., "Psychological Experience with the Interview." *Journal of Personnel Research,* 1926, **4**, 162-165.

Wyatt, S., et al., *A Study of Absenteeism among Women.* London: Industrial Health Research Board Emergency Report No. 4, 1943.

Yerkes, R. M. (ed.), "Psychological Examining in the United States Army," Vol. XV of *Memoirs of the National Academy of Sciences.* Washington, D.C.: Government Printing Office, 1921.

Zerga, J. E., "Developing an Industrial Merit Rating Scale." *Journal of Applied Psychology,* 1943, **27**, 190-195.

———, "Job Analysis; A Résumé and Bibliography." *Journal of Applied Psychology,* 1943, **27**, 249-267.

Zirn, H., "Eine psychotechnische Eignungsprüfung für den Schuhmacher." (Psychotechnical Aptitude Tests for Shoemakers.) *Psychotechnische Zeitschrift,* 1931, **6**, 65-80.

Zubin, J., "The Method of Internal Consistency for Selecting Test Items." *Journal of Educational Psychology,* 1934, **25**, 345-356.

C. INDUSTRIAL AND BUSINESS PSYCHOLOGY

Abercrombie, S. A., and C. G. Hawkins, *Measuring the Results of Driver Instruction.* New York: Center for Safety Education, New York University, 1941.

Adjutant General's Office, Personnel Research Section, War Department. "Studies in Visual Acuity," *Report* No. 742, 1948.

Advertising Research Foundation, *Continuing Study of Farm Publications,* Study No. 1. New York: The Foundation, 1946.

———, *Continuing Study of Transportation Advertising,* Study No. 7. New York: The Foundation, 1946.

———, *Copy Testing:* 1. *A Study.* New York: The Ronald Press Company, 1939.

Agnew, H. E., and W. B. Dygert, *Advertising Media.* New York: McGraw-Hill Book Company, Inc., 1938.

Alford, L. P., *Cost and Production Handbook.* New York: The Ronald Press Company, 1945.

———, *Management Handbook.* New York: The Ronald Press Company, 1924.

———, and J. R. Bangs, *Production Handbook.* New York: The Ronald Press Company, 1944.

American Automobile Association, *Pedestrian Protection.* Washington, D.C.: The Association, 1939.

———, *Sportsmanlike Driving Series.* Washington, D.C.: The Association, 1936-1937.

American Management Association, "Compensation Plans for Executives and Workers." *Personnel Series,* 1940, No. 30, 17-28.

———, "The Future of Industrial Training." *Production Series,* 1946, No. 167, 25–34.

———, *Measuring Office Output.* New York: The Association, 1927.

———, "Principles and Methods of Industrial Training." *Personnel Series,* 1941, No. 47, 1–14.

American Marketing Society, *The Technique of Marketing Research.* New York: McGraw-Hill Book Company, Inc., 1937.

American Society of Heating and Ventilating Engineers, "Committee Report on Physiological Factors." *Transactions,* 1939, **45,** 111–112.

———, *Heating, Ventilating, Air Conditioning Guide.* New York: The Society, 1940, Chap. 11, "Instruments and Measurements."

———, *Heating, Ventilating, Air Conditioning Guide, 1946.* New York: The Society, 1946, Chap 12, "Physiological Principles."

———, *Heating, Ventilating, Air Conditioning Guide. 1948.* New York: The Society, 1948, Chap. 12, "Physiological Principles."

Anderieth, R., "Die Lehrlings prüfungen bei den Oesterreichischen Bundesbahnen." *Psychotechnische Zeitschrift,* 1930, **5,** 29–42, 137–156.

Anderson, H. D., and P. E. Davidson, *Occupational Trends in the United States.* Palo Alto, Cal.: Stanford University Press, 1940.

Arensberg, C. M., and D. MacGregor, "Determination of Morale in an Industrial Company." *Applied Anthropology,* 1942, **1,** 12–34.

Associated Press, The, "Navy Typing 35 per Cent Faster by Change of Keyboard." *The New York Times,* October 8, 1943.

Association of Casualty and Surety Executives, *Handbook of Industrial Safety Standards.* New York: National Conservation Bureau, 1945.

Ayers, A. W., "A Comparison of Certain Visual Factors with the Efficiency of Textile Inspectors." *Journal of Applied Psychology,* 1942, **26,** 812–827.

———, "Personality Considerations in Collective Bargaining." *Journal of Consulting Psychology,* 1944, **8,** 144–153.

Babcock, H., *Time and the Mind.* Cambridge, Mass.: Sci-Art Publishers, 1941.

Baitsell, G. A., *Science in Progress.* New Haven, Conn.: Yale University Press, 1945.

Baker, J. S., "Too Long at the Wheel." *Public Safety,* 1935, **9,** 23–26.

Bakke, E. W., "Need for Scientific Study of Human Relations in Industry." *Advanced Management,* 1947, **12,** 81–87.

Balchin, N. M., "On Wasting Time." *Human Factor,* 1934, **8,** 1–15.

Balderston, C. C.; V. S. Karabasz; and R. P. Brecht, *Management of an Enterprise.* New York: Prentice-Hall, Inc., 1935.

Baldwin, D. M., "Traffic on the Turnpike." *Public Safety,* 1946, **30,** 6–7.

Barlow, F. A., "Proper Placement of Women in Industry." *Journal of the American Medical Association,* 1944, **124,** 687–691.

Barnard, C. I., *The Functions of the Executive.* Cambridge, Mass.: Harvard University Press, 1938.

Barnes, R. M., *Motion and Time Study* (2nd ed.). New York: John Wiley & Sons, Inc., 1940.

———, *Work Measurement Manual* (3rd ed.). Dubuque, Iowa: William C. Brown Co., 1946.

———, and M. E. Mundel, *A Study of Simultaneous Symmetrical Hand Motions.* Iowa City: University of Iowa Press, 1939.

———; ———; and J. M. MacKenzie, *Studies of One and Two-handed Work.* Iowa City: University of Iowa Press, 1940.

———; J. S. Perkins; and J. M. Juran, *A Study of the Effect of Practice on the Elements of a Factory Operation.* Iowa City: University of Iowa Press, 1940.

Bartlett, F. C., *Psychology and the Soldier.* Cambridge, England: Cambridge University Press, 1927.

Barton, J. W., "Comprehensive Units in Learning Typewriting." *Psychological Review Monographs,* 1926, **35,** No. 164.

Baumgarten, F., *Die Berufseignungsprüfungen Theorie und Praxis.* Berlin: R. Oldenbourg, 1928.

Bedale, E. M., *Comparison of the Energy Expenditure of a Woman Carrying Loads in Eight Different Positions.* London: Industrial Fatigue Research Board Report No. 29, 1924.

Bedford, T., "Requirements for Satisfactory Ventilation and Heating." *Human Factor,* 1936, **10,** 246–254.

———, *The Warmth Factor in Comfort at Work.* London: Industrial Health Research Board Report No. 76, 1937.

Bellows, R. M., "Procedures for Evaluating Vocational Criteria." *Journal of Applied Psychology,* 1941, **25,** 499–513.

Bender, J. F., "Emotional Adjustment of Workers." *Personnel Journal.* 1944, **22,** 301–307.

Benge, E. J., *How to Make a Morale Survey; A Manual of Procedures.* Deep River, Conn.: National Foreman's Institute, 1941.

Bergen, H. B., "Measuring Wartime Attitudes and Morale." *Personnel Journal,* 1942, **21,** 2–9.

Bergen, N. G., "Employer-Employee Relations in the Office and the Importance of Employee Attitude Determination." *American Management Association, Office Management Series,* 1939, No. 87, 1–34.

Berman, Isabel; John G. Darley; and Donald G. Paterson, "Vocational Interest Scales," *Bulletins of the Employment Stabilization Institute, University of Minnesota,* 1934, **3,** No. 5, 215–245.

Bigelow, C. L., "Building an Effective Training Program for Field Salesmen." *Personnel,* 1938, **14,** 142–150.

———, "Confusion Control in Poster Readership Study." *Journal of Applied Psychology,* 1947, **31,** 626–633.

Bingham, W. V., "Military Psychology in War and Peace." *Science,* 1947, **106,** 155–160.

———, "Personality and Public Accidents; A Study of Accident-Prone Drivers." *Transactions National Safety Council,* 1928, **3,** 174–182.

Bird, N., "Relationships between Experience Factors, Test Scores and Efficiency of Women Office Workers." *Archives of Psychology,* 1931, No. 126.

Blackstone, E. G., and S. L. Smith, *Improvement of Instruction in Typewriting.* New York: Prentice-Hall, Inc., 1936.

Blain, I. J., "Principles of Industrial Training." *Occupational Psychology,* 1944, **18,** 105–111.

Blankenship, A. B., *Consumer and Opinion Research.* New York: Harper & Brothers, 1943.

———, *How to Conduct Consumer and Opinion Research.* New York: Harper & Brothers, 1946.

———, "Methods of Measuring Industrial Morale," in G. W. Hartmann and T. Newcomb (eds.), *Industrial Conflict; A Psychological Interpretation.* New York: The Dryden Press, Inc., 1939, pp. 299–312.

———, and H. R. Taylor, "Prediction of Vocational Proficiency in Three Machine Operations." *Journal of Applied Psychology,* 1938, **22,** 518–526.

Blum, M. L., *Industrial Psychology and Its Social Foundations.* New York: Harper & Brothers, 1949.

———, and J. J. Russ, "A Study of Employee Attitudes toward Various Incentives." *Personnel,* 1942, **19,** 438–444.

Borden, N. H., and O. S. Lovekin, "A Test of the Consumer Jury Method of Ranking Advertisements." *Publications of the Graduate School of Business Administration,* Harvard University, 1935, **22,** No. 2.

Brainerd, A. A., and M. Denning, "Improved Vision in Machine Tool Operations by Color Contrast." *Illuminating Engineering,* 1941, **36,** 1397–1413.

Brakeman, E. E., and C. S. Slocombe, "Review of Recent Experimental Results Relevant to the Study of Individual Accident Susceptibility." *Psychological Bulletin,* 1929, **26,** 15–38.

Bray, C. W., *Psychology and Military Proficiency: A History of the Applied Psychology Panel of the National Defense Research Council.* Princeton: Princeton University Press, 1948.

Bridges, C. D., *Job Placement of the Physically Handicapped.* New York: McGraw-Hill Book Company, Inc., 1946.

Brighouse, G., *The Physically Handicapped Worker in Industry.* Pasadena: Industrial Relations Section, California Institute of Technology, Bulletin No. 13, 1946.

Brody, Leon, *Personal Factors in Safe Operation of Motor Vehicles.* New York: Center for Safety Education, Division of General Education, New York University, 1941.

Brown, C. W., and E. E. Ghiselli, "Accident Proneness among Street Car Motormen and Motor Coach Operators." *Journal of Applied Psychology,* 1948, **32,** 20–23.

Brown, G., "Job Attitudes: II. Store Employees." *Personnel Journal,* 1941, **20,** 98–104.

Brown, M., *Industrial Fatigue.* Chicago: Zurich Insurance Companies, 1942.

Brown, R. F., and D. R. Smith, "Integration of English Usage and Typing Skills." *The Clearing House,* 1937, **12,** 233–237.

Bunch, C. C., "Conservation of Hearing in Industry." *Journal of the American Medical Association,* 1942, **118,** 588–593.

Burt, C., "Psychology in the Forces." *Occupational Psychology,* 1947, **21,** 141–146.

Burton, A., "Behavioral Characteristics of Monotony in Two Age Groups." *Journal of Experimental Psychology,* 1943, **33,** 323–329.

Burtt, H. E., *Psychology of Advertising.* Boston: Houghton Mifflin Company, 1938.

———, *Psychology and Industrial Efficiency.* New York: Appleton-Century-Crofts, Inc., 1929.

Campbell, A., "The Uses of the Interview Surveys in Federal Administration." *Journal of Social Issues,* 1946, **2,** 14–22.

Campbell, J. W., "An Attitude Survey in a Typical Manufacturing Firm." *Personnel Psychology,* 1948, **1,** 31–39.

Caples, John, *Advertising for Immediate Sales.* New York: Harper & Brothers, 1936.

———, *Tested Advertising Methods.* New York: Harper & Brothers, 1932.

Cardall, A. J., "Psychological Factors in Accident Prevention." *Personnel Journal,* 1948, **26,** 288–293.

———, *Purdue Pegboard.* Chicago: Science Research Associates, 1942.

———, "A Test for Primary Business Interests Based on a Functional Occupational Classification." *Educational and Psychological Measurement,* 1942, **2,** 113–138.

Carey, H. H., "Consultative Supervision and Management." *Personnel,* 1942, **18,** 286–295.

Carroll, F. E., "Defective Eyesight in the Building Trades." *The Bausch & Lomb Magazine,* 1940, **16,** 19–23.

Carroll, P., *Timestudy Fundamentals for Foremen.* New York: McGraw-Hill Book Company, Inc., 1944.

Carter, L. F. (ed.), *Psychological Research on Navigator Training.* Army Air Forces, Aviation Psychology Program Research Reports, No. 10. Washington: Government Printing Office, 1947.

Cathcart, E. P.; E. M. Bedale; C. Blair; K. Maclean; and E. Weatherhead, *The Physique of Women in Industry: A Contribution toward the Determination of the Optimum Load.* London: Industrial Fatigue Research Board Report No. 44, 1927.

Center for Safety Education, New York University, *Personal Characteristics of Traffic-Accident Repeaters.*

Saugatuck, Conn.: Eno Foundation for Highway Traffic Control, 1948.

Chapanis, A.; W. R. Gardner; and C. T. Morgan, *Applied Experimental Psychology*. New York: John Wiley & Sons, Inc., 1949.

Charters, W. W., and I. B. Whitley, *Analysis of Secretarial Duties and Traits*. Baltimore, Md.: The Williams and Wilkins Company, 1924.

Civil Aeronautics Administration, Division of Research, *Report Series*, Nos. 1–70. Washington, D.C.: The Administration, 1942–1947.

Claparede, E., "Le Test du chef de gare." *Archives de psychologie*, 1923, **92**, 336–343.

Claparede, G. U., and C. W. Mason, *Executive Ability; Its Discovery and Development*. Yellow Springs, Ohio: Antioch Press, 1934.

Cleveland Railway Company and Metropolitan Life Insurance Company, *The Accident Prone Employee*. New York: Policy Holders Service Bureau, Metropolitan Life Insurance Company, 1929.

Coakley, J. D., *Human Influence on the Product of Automatic Machines*. New York: Bio-Mechanics Division, The Psychological Corporation, 1947 (unpublished).

Cobb, P. W., "The Limit of Usefulness of Accident Rate as a Measure of Accident Proneness." *Journal of Applied Psychology*, 1940, **24**, 154–159.

Cofer, C. N., and E. B. Cohen, "Job Attitudes of a Hundred and One Federal Employees." *Public Personnel Review*, 1943, **4**, 96–102.

Cole, R. J., "A Survey of Employee Attitudes." *Public Opinion Quarterly*, 1940, **4**, 497–506.

Cook, S. W. (ed), *Psychological Research on Radar Observer Training*. Army Air Forces, Aviation Psychology Program Research Reports, No. 12. Washington, D.C.: Government Printing Office, 1947.

Cornell, W. B., *Industrial Organization and Management*. New York: The Ronald Press Company, 1928.

Cottrell, W. F., *The Railroader*. Palo Alto, Cal.: Stanford University Press, 1940.

Coutant, Frank, "How to Select Trial Cities and Check Sales-Test Results." *Printers' Ink*, 1932, **161**, 59–62.

Couve, R., "Die psychologische Eignungsprüfung von Eisenbahnverksersbeamten." *Industrielle Psychotechnik*, 1924, **1**, 22–29.

Craig, D. R., and W. W. Charters, *Personal Leadership in Industry* (2nd ed.). New York: McGraw-Hill Book Company, Inc., 1941.

Crawford, M. P. (ed.), *Psychological Research on Operational Training in the Continental Air Forces*. Army Air Forces, Aviation Psychology Program Research Reports, No. 16. Washington, D.C.: Government Printing Office, 1947.

Crowden, G. P., *Muscular Work, Fatigue and Recovery*. London: Pitman Publishing Corporation, 1932.

———, *The Physiological Cost of Muscular Movements Involved in Barrow Work*. London: Industrial Fatigue Research Board Report No. 50, 1928.

Culler, A. M., "Visual Efficiency in Industry." *Journal of the American Medical Association*, 1941, **116**, 1349–1355.

Cushman, F., *Training Procedure*. New York: John Wiley & Sons, Inc., 1940.

Dailey, J. T. (ed.), *Psychological Research on Flight Engineering Training*. Arlington Forces, Aviation Psychology Program Research Reports, No. 13. Washington, D.C.: Government Printing Office, 1947.

Dame, J. F., et al., *Prognosis, Guidance and Placement in Business Education*. Cincinnati, Ohio: South-Western Publishing Company, Inc., 1944.

Darley, W. G., and L. S. Ickis, "Lighting and Seeing in the Drafting Room." *Illuminating Engineering*, 1941, **36**, 1462–1491.

Davis, D. D. W., "Evaluation of the Simplified Typewriter Keyboard." *Journal of Business Education*. 1935–1936, **10**, 11–12, 19–21.

Davis, D. S., *Empirical Equations and Nomography*. New York: McGraw-Hill Book Company, Inc., 1943.

Deemer, W. I., *An Empirical Study of the Relative Merits of Gregg Shorthand and Script Shorthand*. Cambridge, Mass.: Harvard University Press, 1944.

DeFord, Miriam, *The Old Worker Comes Back*. San Francisco: Old Age Counselling Center.

Department of Agriculture, *Motor Vehicle Traffic Conditions in the United States: Part 6. The Accident Prone Driver*. Washington, D.C.: Government Printing Office, 1938.

Derse, J. C., *Machine Operation Times for Estimators; Standard Data and Methods*. New York: The Ronald Press Company, 1946.

De Silva, H. R., *Scientific Investigation of Automobile Driving Skill*. Boston: Works Progress Administration, 1936.

———, *Why We Have Automobile Accidents*. New York: John Wiley & Sons, Inc., 1942.

De Vyver, F. T., "Requests and Complaints of Unionized Workers." *Personnel Journal*, 1941, **19**, 336–347.

Dichter, E., *The Psychology of Everyday Living*. New York: Barnes & Noble, Inc., 1947.

———, "Psychology in Market Research." *Harvard Business Review*, 1947, **4**, 432–443.

———, "Raw Material for the Copy Writer's Imagination through Modern Psychology." *Printers' Ink*, 1943, **202**, 63–68.

Dickson, W. J., "Employee Education and Counseling Programs." *American Management Association, Personnel Series*, 1938, No. 35.

———, "The Hawthorne Plan of Personnel Counseling." *American Journal of Orthopsychiatry*, 1945, **15**, 343–347.

Dilger, I., "Eignung, Leistung und Charakter bei Wagenmeistern." *Industrielle Psychotechnik*, 1934, **11**, 10–15.

Dill, D. B.; H. T. Edwards; P. S. Bauer; and E. J. Levenson, "Physiological Performance in Relation to Ex-

ternal Temperature." *Arbeitsphysiologic,* 1931, **4,** 508–518.

Dollard, J., "Twelve Rules for Meeting Battle Fatigue." *The Infantry Journal,* 1944, **54,** 36–38.

Dorcus, R. M., "Methods of Evaluating the Efficiency of Door-to-Door Salesman of Bakery Products." *Journal of Applied Psychology,* 1940, **24,** 587–594.

Dougherty, N. F., *Occupational Planning for Tomorrow.* New York: Richard R. Smith, 1944.

Drake, C. A., "Accident Proneness; A Hypothesis." *Character and Personality,* 1940, pp. 335–341.

———, "When Wage Incentives Fail: Part I. Individual Incentives." *Advanced Management,* 1942, **7,** 42–44.

Driver, R. S., "Training as a Means of Improving Employee Performance Rating." *Personnel,* 1942, **18,** 364–370.

Drucker, P. F., "The Way to Industrial Peace." *Harper's Magazine,* December, 1946; January, 1947.

Duffy, Ben, *Advertising Media and Markets.* New York: Prentice-Hall, Inc., 1939.

Duke-Elder, W. S., "An Investigation into the Effect upon the Eyes of Occupations Involving Close Work." *British Journal of Ophthalmology,* 1930, 610–620.

Dunlap, J. W., "Men and Machines." *Journal of Applied Psychology,* 1947, **31,** 565–579.

Dvorak, A., "There Is a Better Typewriter Keyboard." *National Business Education Quarterly,* 1943, **12,** 51–58, 66.

———, et al., *Typewriting Behavior.* New York: American Book Company, 1936.

Dvorak, Beatrice J., "Differential Occupational Patterns." *Bulletins of the Employment Stabilization Institute, University of Minnesota,* 1935, **3,** No. 8, 309–334.

Eastern Commercial Teachers Association, Raymond C. Goodfellow (ed.), *Eleventh Yearbook: Modernizing Business Education.* Philadelphia: The Association, 1938.

Eckerman, A. C., "An Analysis of Grievances and Aggrieved Employees in a Machine Shop and Foundry." *Journal of Applied Psychology,* 1948, **32,** 255–269.

Elton, P. M., *A Study of Output in Silk Weavers during the Winter Months.* London: Industrial Fatigue Research Board Report No. 9, 1920.

Entwisle, B. S., "An Experiment with Rhythm in Teaching Typewriting." *University of Iowa Monographs in Education; Research Studies in Commercial Education,* 1928, **11,** 75–83.

Eriksen, E. G., et al., "Demonstration of Individualized Training Methods for Modern Office Workers." *Bulletins of the Employment Stabilization Research Institute, Univeristy of Minnesota,* 1934, **3,** No. 2.

Falk, A. T., "Analyzing Advertising Results." *Harvard Business Review,* 1929, **7,** 185–194, 312–329.

Farmer, E., "Accident-Proneness on the Road." *Practitioner,* 1945, **154,** 221–226.

———, *A Comparison of Different Shift Systems in the Glass Trades.* London: Industrial Fatigue Research Board Report No. 24, 1924.

———, *The Personal Factor in Accidents.* London: Industrial Health Research Board Emergency Report No. 3, 1942.

———, and C. G. Chambers, *A Psychological Study of Individual Differences in Accident Rate.* London: Industrial Fatigue Research Board Report No. 38, 1926.

——— and ———, *A Study of Personal Qualities in Accident Proneness and Proficiency.* London: Industrial Fatigue Research Board Report No. 55, 1929.

Feinberg, R., and S. E. Wirt, "Visual Acuity in Relation to Illumination in the Ortho-Rates." *Journal of Applied Psychology,* 1947, **31,** 406–412.

Ferguson, L. W., "The Development of a Method of Appraisal for Assistant Managers." *Journal of Applied Psychology,* 1947, **31,** 306–311.

Ferre, C. E., and G. Rand, "Work and Its Illumination." *Personnel Journal,* 1940, **19,** 55–64, 93–98.

File, Q. W., and H. H. Remmers, "Studies in Supervisory Evaluation." *Journal of Applied Psychology,* 1946, **30,** 421–425.

Finlinson, J. J., *Police Training Schools.* Chicago: City Manager Yearbook, 1931.

Firth, L. E., *Testing Advertisements.* New York: McGraw-Hill Book Company, Inc., 1934.

Fitts, P. M., *Psychological Research on Equipment Design.* Army Air Force, Aviation Psychology Program Research Reports, No. 19. Washington, D.C.: Government Printing Office, 1947.

———, "Psychological Research on Equipment Designs in the AAF." *The American Psychologist,* 1947, **2,** 93–98.

———, "Psychology and Aircraft Design; A Study of Factors Pertaining to Safety." *Mechanical Engineering,* 1947, **69,** 135.

Fleisher, W. I.; A. E. Stacey, Jr.; F. C. Houghten; and M. B. Ferderber, "Air Conditioning in Industry." *Heating, Piping and Air Conditioning,* 1939, **11,** 191–194, 255–268.

Flory, C. D., and J. E. Janney, "Psychological Services to Business Leaders." *Journal of Consulting Psychology,* 1946, **10,** 115–119.

Foner, P. S., *Morale Education in the American Army.* New York: International Publishers Co., Inc., 1944.

Forbes, T. W., "Age-Performance Relationships among Accident-Repeater Automobile Drivers." *Journal of Consulting Psychology,* 1938, **2,** 143–148.

———, "Discussion—'Channelization of Motor Traffic,' by Kelcey." *Proceedings of American Society of Civil Engineers,* 1940, **66,** 1009–1014.

———, "Factors of Adequate Sign Design," in H. F. Hammond and L. J. Sorensen (eds.), *Traffic Engineering Handbook.* New York: Institute of Traffic Engineers, 1941, pp. 106–107.

———, "Measuring Drivers' Reactions." *Personnel Journal,* 1932, **11,** 111–119.

———, "A Method for Analysis of the Effectiveness of

Highway Signs." *Journal of Applied Psychology,* 1939, **23,** 669–684.

———, "Methods of Measuring Judgment and Perception Time on the Highway." *Proceedings of the Highway Research Board, Washington,* 1939, **19,** 218–231.

———, and R. S. Holmes, "Legibility Distances of Highway Destination Signs in Relation to Letter Height, Letter Width and Reflectorization." *Proceedings of the Highway Research Board,* Washington, 1939, **19,** 321–325.

———, and T. M. Matson, "Driver Judgments in Passing on the Highway." *Journal of Psychology,* 1939, **8,** 3–11.

Frank, Karl B., *Will Germany Crack?* New York: Harper & Brothers, 1942.

Frankel, F. H., *Effects of Noise on the Hearing of Industrial Workers.* Albany: New York Department of Labor, 1930.

Franzen, R., and D. R. Brimhall, *The Relation to Accident of Physical Defects Noted in Standard CAA Medical Examinations.* Washington, D.C.: Reports of the Division of Civilian Aeronautics Administration, 1942, No. 3.

Freeman, E., "A Basis for Testing and Improving Vision in Industry." *Journal of Consulting Psychology,* 1945, **9,** 35–44.

Freiberg, A. D., "Copy Testing," Chap. 9 in A. B. Blankenship (ed.), *How to Conduct Consumer and Opinion Research.* New York: Harper & Brothers, 1946.

Gaetjens, A. K., and D. M. Warren, *Lighting for Production in the Factory.* Cleveland, Ohio: General Electric Company, 1939.

Gagge, A. P., "Standard Operative Temperature: A Generalized Temperature Scale Applicable to Direct and Partitional Calorimetry." *American Journal of Physiology,* 1940, **131,** 93–103.

———, et al., "A Practical System of Units for the Description of the Heat Exchange of Man with His Environment." *Science,* 1941, **94,** 428–430.

———; C.-E. A. Winslow; and L. P. Herrington, "The Influence of Clothing on the Physiological Reactions of the Human Body to Varying Environmental Temperatures." *American Journal of Physiology,* 1938, **124,** 30–50.

Gardner, B. B., *Human Relations in Industry.* Chicago: Richard D. Irwin, Inc., 1945.

Ghiselli, E. E., and C. W. Brown, "Learning in Accident Reduction." *Journal of Applied Psychology,* 1947, **31,** 580–582.

Gibson, J. J. (ed.), *Motion Picture Testing and Research.* Army Air Forces, Aviation Psychology Program Research Reports, No. 7. Washington, D.C.: Government Printing Office, 1947.

Giellerup, S. H., *Comparison of Actual Results with Ratings of Advertisements Previously Obtained.* New York: Giellerup, Partner, Marschalk and Pratt Company, 1926 (unpublished).

Giese, W. J., "The Interrelationship of Visual Acuity at Different Distances." *Journal of Applied Psychology,* 1946, **30,** 91–106.

Gifford, G., "Psychology in Training Conductorettes." *Mass Transportation,* 1944, 40–134.

Gilberson, L. G., "Personality Problems in the Office." *Personnel Journal,* 1943, **21,** 239–243.

Gilbreth, F. B., and Lillian Gilbreth, *Applied Motion Study.* New York: The Macmillan Company, 1919.

Golden, C. S., and H. J. Ruttenberg, *The Dynamics of Industrial Democracy.* New York: Harper & Brothers, 1942.

Goldmark, J., and M. D. Hopkins, *Comparison of an Eight-Hour Plant and a Ten-Hour Plant.* Washington, D.C.: US Public Health Service, Bulletin No. 106, 1920.

Goodall, G. W., "Some Workers' Mental Attitudes." *Occupational Psychology,* 1942, **16,** 65–72.

Gottsdanker, R. M., "Measures of Potentiality for Machine Calculation." *Journal of Applied Psychology,* 1943, **27,** 233–248.

Greenwood, M., and H. M. Woods, *The Incidence of Industrial Accidents, with Special Reference to Multiple Accidents.* London: Industrial Fatigue Research Board Report No. 4, 1919.

Grether, W. F., "Factors in the Design of Clock Dials Which Affect Speed and Accuracy of Reading in the 2400-Hour Time System." *Journal of Applied Psychology,* 1948, **32,** 159–169.

———, *A Study of Several Design Factors Influencing Pilot Efficiency in the Operation of Controls.* Wright Field, Ohio: Memorandum Report TSEAA-694-9, Aero Medical Laboratory, Nov. 12, 1946.

Gurfein, M., and M. Janowitz, "Trends in Wehrmacht Morale." *Public Opinion Quarterly,* 1946, **10,** 78–84.

Habbe, S., "Job Attitudes of Life Insurance Agents." *Journal of Applied Psychology,* 1947, **31,** 111–128.

Haire, M., "Psychological Factors in the Design of Equipment." *Mechanical Engineering,* 1947, **69,** 399.

Hallbauer, M., "Prüfung der Aufmerksamkeits- und Reaktionsweise von Treibwagenführern." *Praktische Psychologie,* 1923, **4,** 104–113.

Halsey, G. D., *Training Employees.* New York: Harper & Brothers, 1949.

Harding, D. W., "Alternative Capacities for Typewriting." *Human Factor,* 1937, **11,** 97–105.

———, "Rhythm in Typewriting." *Journal of National Institute of Industrial Psychology,* 1930–1931, **5,** 434.

Harrell, T. W., "Aviation Psychology in the Army Air Forces." *Psychological Bulletin,* 1945, **42,** 386–389.

———, *Industrial Psychology.* New York: Rinehart & Company, Inc., 1949.

Harvey, V. K., and E. P. Luongo, "Principles of Indus-

trial Physiology and Psychology Related to the Evaluation of the Working Capacity of the Physically Impaired." *Occupational Medicine,* 1946, **1,** 1–47.

Heinrich, H. W., *Industrial Accident Prevention.* New York: McGraw-Hill Book Company, Inc., 1931.

Hersey, R. B., "Emotional Factors in Accidents." *Personnel Journal,* 1936, **15,** 59–65.

———, "Periodic Emotional Changes in Male Workers." *Personnel Journal,* 1929, **7,** 459–464.

———, "Psychology of Workers." *Personnel Journal,* 1936, **14,** 291–296.

———, "Rate of Production and Emotional States." *Personnel Journal,* 1929, **7,** 459–463.

———, "Rests—Authorized and Unauthorized." *Journal of Personnel Research,* 1925, **4,** 37–45.

———, *Workers' Emotions in Shop and Home.* Philadelphia: University of Pennsylvania Press, 1932.

Hewitt, A. I. G., "Some Aspects of Organized Training." *Occupational Psychology,* 1944, **18,** 185–191.

Hockett, H. C., *Political and Social Growth of the American People, 1492–1865.* New York: The Macmillan Company, 1943.

Hoff, E. C., and J. F. Fulton (comps.), *A Bibliography of Aviation Medicine.* New Haven, Conn.: Yale University Press, 1942.

Hoslett, S. D., *Human Factors in Management.* Parkville, Mo.: Park College Press, 1946.

Houghten, F. C., et al., "General Reactions of 274 Office Workers to Summer Cooling and Air Conditioning." *Heating, Piping and Air Conditioning,* 1938, **10,** 552–556.

———; S. B. Gunst; and J. Suciu, "Radiation as a Factor in the Sensation of Warmth." *Heating, Piping and Air Conditioning,* 1941, **13,** 123–134.

———, and C. P. Yagloglou, "Determining Lines of Equal Comfort." *Transactions, American Society of Heating and Ventilating Engineers,* 1923, **29,** 163–176.

Howell, W. R., "Measured Day Work vs. Wage Incentives." *Advanced Management,* 1938, **3,** 54–57.

Huszar, G. B. de, *Practical Applications of Democracy.* New York: Harper & Brothers, 1945.

Hutt, R. B. W. (ed.), *Training in Industry; A Bibliography.* Simsbury, Conn.: Industrial Relations Department, Ensign-Bickford Company, 1943.

Hutton, B., and A. Rooney, *The Story of the Stars and Stripes.* New York: Rinehart & Company, Inc., 1946.

Illuminating Engineering Society, *American Recommended Practice of School Lighting.* New York: The Society, 1948.

———, *Recommended Practice of Home Lighting.* New York: The Society, 1945.

———, *Recommended Practice of Industrial Lighting.* New York: The Society, 1942.

———, *Recommended Practice of Office Lighting.* New York: The Society, 1942.

Industrial Health Research Board, *Hours of Work, Lost Time and Labour Wastage.* London: The Board, Emergency Report No. 2, 1942.

———, *Industrial Health in War.* London: The Board, Emergency Report No. 1, 1940.

———, *The Personal Factor in Accidents.* London: The Board, Emergency Report No. 3, 1942.

Jackman, J. R., "Pre-vocational Training versus Initial Employment Requirements." *Personnel,* 1938, **15,** 66–74.

Jenkins, J. G., "Characteristics of the Question as Determinants of Dependability." *Journal of Consulting Psychology,* 1941, **5,** 164–169.

———, "Utilization of Psychologists in the United States Navy." *Psychological Bulletin,* 1942, **39,** 371–375.

Jensen, M. B., "The Influence of Jazz and Dirge Music upon Speed and Accuracy of Typing." *Journal of Educational Psychology,* 1931, **22,** 458–462.

Johnson, A. P., *Experimental Comparison of Sighting and Triggering Performance with Hand Grips As Compared to Hand Wheels Controls on the B-29 Pedestal Sight. Memorandum Report ISE.4.4 - 8 - 694-2.* Wright Field: Aero-Medical Laboratory, 1946.

Johnson, H. M., "The Detection and Treatment of Accident-Prone Drivers." *Psychological Bulletin,* 1946, **43,** 489–532.

Judson, H. H., and J. M. Brown, *Occupational Accident Prevention.* New York: John Wiley & Sons, Inc., 1944.

Kappauf, W. E., "History of Psychological Studies of the Design and Operation of Equipment." *American Psychologist,* 1947, **2,** 83–86.

Katz, D., and H. Hyman, "Industrial Morale and Public Opinion Methods." *International Journal of Opinion and Attitude Research,* 1947, **1,** 13–30.

Katz, O., and E. Dichter, "Studies in Television," Nos. 1–9. *Tide,* 1945, **4,** 21–22; **5,** 118–120; **6,** 116–120; **7,** 110–114; **8,** 116–120; **10,** 122–128; **11,** 114–118; **12,** 122–128; **13,** 122–126.

Kelly, G. A. (ed.), *New Methods in Applied Psychology.* College Park, Md.: University of Maryland, 1947.

Kemp, E. H., and A. P. Johnson, *Research on Bombardier Training.* Army Air Forces, Aviation Psychology Program Research Reports, No. 9. Washington, D.C.: Government Printing Office, 1947.

Kenagy, H. G., and C. S. Yoakum. *Selecting and Training of Salesmen.* New York: McGraw-Hill Book Company, Inc., 1925.

Kephart, H. C., "Visual Skills and Labor Turnover. *Journal of Applied Psychology,* 1948, **32,** 51–55.

Keppel, F. P., *Some War-Time Lessons.* New York: Columbia University Press, 1920.

Kerr, W. A., "Factor Analysis of 229 Electrical Workers' Beliefs in the Effects of Music." *Psychological Record,* 1942, **5,** 213–221.

———, "Music for Workers." *Personnel Journal,* 1943, **22,** 32–34.

———, "On the Validity and Reliability of the Job

Satisfaction Tear Ballot." *Journal of Applied Psychology*, 1948, **32**, 275–281.

———, "Psychological Effects of Music As Reported by 162 Defense Trainees." *Psychological Record*, 1942, **5**, 205–212.

———, "Where They Like to Work: Work-Place Preferences of 228 Electrical Workers in Terms of Music." *Journal of Applied Psychology*, 1943, **27**, 438–442.

———, "Worker Attitudes toward Scheduling of Industrial Music." *Journal of Applied Psychology*, 1946, **30**, 575–578.

Keys, N., and J. M. Nathan, "Occupations for the Mentally Handicapped." *Journal of Applied Psychology*, 1932, **16**, 497–511.

Kimball, D. S., and D. S., Jr., *Principles of Industrial Organization* (5th ed.). New York: McGraw-Hill Book Company, Inc., 1939.

Kingsbury, F. A., "A Psychologist's View of the Selection-Training Problem," in *Proceedings of the Twelfth Annual Conference, National Office Management Association*. New York: The Association, 1931, pp. 40–46.

Kirkpatrick, F. H., "Music and the Factory Worker." *Psychological Record*, 1942, **5**, 197–204.

———, "Music in Industry." *Journal of Applied Psychology*, 1943, **27**, 268–274.

———, "What TWI Has Learned about Developing Training Programs." *Personnel*, 1945, **2**, 84–136.

Knehr, C. A.; D. B. Dill; and W. Neufeld. "Training and Its Effects on Man at Rest and at Work." *American Journal of Physiology*, 1942, **136**, 148–156.

Kolstad, A., "Employee Attitudes in a Department Store." *Journal of Applied Psychology*, 1938, **22**, 470–479.

Kornhauser, A. W., "The Study of Work Feelings." *Personnel Journal*, 1930, **8**, 351.

———, and A. A. Sharp, "Employee Attitudes; Suggestions from a Study in a Factory." *Personnel Journal*, 1932, **10**, 393–404.

Kossoris, M. D., *Studies of the Effects of Long Working Hours*. Washington, D.C.: US Department of Labor, Bulletins No. 791 and 791A, 1944.

Kraft, Merwyn A., and Theodore W. Forbes, "Evaluating the Influence of Personal Characteristics on the Traffic Accident Experience of Transit Operators." *Proceedings of the Highway Research Board*, 1944, **24**, 278–291.

Kuhn, H. S., *Industrial Ophthalmology*. St. Louis, Mo.: The C. V. Mosby Company, 1944.

"Labor and Management in a Democracy." *Public Opinion Quarterly*, 1943, **7**, 354–456.

Lahy, J. M., and S. Korngold, "La fatigabilité est-elle une cause des accidents?" *Travail humain*, 1936, **4**, 153–162.

La Piere, R. T., *Collective Behavior*. New York: McGraw-Hill Book Company, Inc., 1938.

Larson, J. A., *Lying and Its Detection*. Chicago: University of Chicago Press, 1932.

Lauer, A. R., *Methods of Measuring the Ability to Drive an Automobile*. Iowa City: University of Iowa Extension Service, Engineering Bulletin No. 115, 1936.

Lawshe, C. H., Jr., *A Review of the Literature Related to the Various Psychological Aspects of Highway Safety*. Lafayette, Ind.: Purdue University, 1939.

———, "Training Operative Personnel." *Journal of Consulting Psychology*, 1944, **8**, 154–159.

———, and J. Tiffin, "The Accuracy of Precision Instrument Measurement in Industrial Inspection." *Journal of Applied Psychology*, 1945, **29**, 413–419.

Lazarsfeld, P. F., "The Art of Asking Why in Marketing Research." *National Marketing Review*, 1935, **1**, 1–13.

———, and M. Fiske, "The 'Panel' as a New Tool for Measuring Opinions." *Public Opinion Quarterly*, 1938, **2**, 596–613.

———, and F. N. Stanton, *Radio Research 1942–1943*. New York: Essential Books, 1944.

Lee, D. H. K., *A Basis for the Study of Man's Reaction to Tropical Climates*. Queensland, Australia: University of Queensland, Department of Physiology, Publication No. 5, 1940.

Legros, L. A., and H. E. Weston, *On the Design of Machinery in Relation to the Operator*. London: Industrial Fatigue Research Board Report No. 36, 1926.

Lepley, W. M. (ed.), *Psychological Research in the Theaters of War*. Army Air Forces, Aviation Psychology Program Research Reports, No. 17, Washington, D. C.: Government Printing Office, 1947.

Limburg, C. C., "Psychological Work in the United States Maritime Service." *Psychological Bulletin*, 1944, **41**, 664–668.

Lindahl, L. G., "Movement Analysis as an Industrial Training Method." *Journal of Applied Psychology*, 1945, **29**, 420–436.

Link, H. C., "An Experiment in Depth Interviewing." *Public Opinion Quarterly*, 1943, **7**, 267–279.

———, "A New Method of Testing Advertising Effectiveness." *Harvard Business Review*, 1933, **11**, 165–177.

———, *The New Psychology of Selling and Advertising*. New York: The Macmillan Company, 1932.

———, "The Ninety-fourth Issue of the Psychological Barometer and a Note on Its Fifteenth Anniversary." *Journal of Applied Psychology*, 1948, **32**, 105–117.

Long, N. C., "An Experiment with the Relative Efficiency of Various Methods of Teaching the Typewriter Keyboard." *University of Iowa Monographs in Education, Research Studies in Commercial Education*, 1929, **4**, 34–39.

Lorge, L., and R. D. Blau, "Broad Occupational Groupings by Estimated Abilities." *Occupations*, 1942, **21**, 289–295.

——— and ———, "Broad Occupational Grouping by Intelligence Levels." *Occupations*, 1942, **20**, 419–423.

Loucks, R. B., *Legibility of Aircraft Instrument Dials; A Further Investigation of the Relative Legibility of Tachometer Dials*. Randolph Field, Texas: AAF School of Aviation Medicine, Project No. 265, 1944.

Loutzenheiser, D. W., "Design of Signs for the Pentagon

Road Network." *Proceedings of the Highway Research Board,* 1943, **23,** 206–235.

Lowry, S. M.; H. B. Maynard; and G. J. Stegemerten, *Time and Motion Study and Formulas for Wage Incentives.* New York: McGraw-Hill Book Company, Inc., 1940.

Lucas, D. B., "A Rigid Technique for Measuring the Impression Values of Specific Magazine Advertisements." *Journal of Applied Psychology,* 1940, **24,** 778–790.

———, and M. J. Murphy, "False Identification of Advertisements in Recognition Tests." *Journal of Applied Psychology,* 1939, **23,** 264–269.

Luckiesh, M., *Light, Vision and Seeing.* New York: D. Van Nostrand Company, Inc., 1944.

———, and F. K. Moss, "Functional Adaptation to Near-Vision." *Journal of Experimental Psychology,* 1940, **26,** 352–356.

Lynch, J. T., "Traffic Planning Studies in American Cities." *Public Roads,* 1945, **24,** 168–170.

Lytle, C. W., *Wage Incentive Methods.* New York: The Ronald Press Company, 1929.

MacKenzie, D., "Wage Incentives." *Advanced Management,* 1944, **9,** 129–135.

Magoun, F. A., *Problems in Human Engineering.* New York: The Macmillan Company, 1932.

Maier, N. R. F., *Psychology in Industry.* Boston: Houghton Mifflin Company, 1946.

Manson, G. E., and G. L. Freeman, "A Technique for Evaluating Assembled Evidence of Potential Leadership Ability." *Educational and Psychological Measurement,* 1944, **4,** 21–33.

Manson, M. P., "A Note on the Use of Pre-test Practice Periods by Typists-Clerks." *Journal of Applied Psychology,* 1944, **28,** 132–133.

Manzer, C. W., "An Experimental Investigation of Rest Pauses." *Archives of Psychology,* 1927, No. 90.

Mapel, E. B., "Stimulating Employee Self-Improvement." *Personnel Journal,* 1941, **19,** 316–324.

Margolis, S., "Reducing Labor Turnover." *Personnel Journal,* 1945, 22–28.

Marrow, A. J., and J. R. P. French, Jr., "Changing a Stereotype in Industry." *Journal of Social Issues,* 1945, **1,** No. 3, 33–37.

Martin, H. G., "Location of Trouble Makers with the Guilford Martin Personnel Inventory." *Journal of Applied Psychology,* 1944, **28,** 461–467.

Marzi, A., "La Psicotecnica nelle piccole aziende industriali." (Psychotechnology in Small Industries.) *Boll. Sindacato Fascista Inf. di Firenze,* 1933, Nos. 4, 5.

Mathewson, S. B., *Restriction of Output among Unorganized Workers.* New York: Viking Press, 1931.

Matson, T. M., and T. W. Forbes, "Overtaking and Passing Requirements as Determined from a Moving Vehicle." *Proceedings of the Highway Research Board,* 1938, **18,** Part I, 100–112.

Maynard, H. B., and G. J. Stegemerten, *Operation Analysis.* New York: McGraw-Hill Book Company, Inc., 1939.

———; ———; and J. L. Schwab, *Methods-Time Measurement.* New York: McGraw-Hill Book Company, Inc., 1848.

Mayo, E., *The Human Problems of an Industrial Civilization.* New York: The Macmillan Company, 1933.

———, "Revery and Industrial Fatigue." *Journal of Personnel Research,* 1924, **3,** 273–281.

———, *The Social Problems of an Industrial Civilization.* Cambridge, Mass.: Harvard University Press, 1945.

———, and G. F. F. Lombard, *Teamwork and Labor Turnover in the Aircraft Industry of Southern California.* Cambridge, Mass.: Harvard University, Public Grade School Business Administration, No. 32, 1944.

McConnell, W. J., and F. C. Houghten, "Some Physiological Reactions to High Temperatures and Humidities." *Journal of American Society of Heating and Ventilating Engineers,* 1923, **29,** 129–163.

McDowall, R. J. S., and H. M. Wells, "The Psychology of Monotony." *British Medical Journal,* 1927, **1,** 414.

McFarland, R. A., *Human Factors in Air Transport Design.* New York: McGraw-Hill Book Company, Inc., 1946.

———; A. H. Holway; and L. M. Hurvich, *Studies of Visual Fatigue.* Boston: Harvard University, Graduate School of Business Administration, 1942.

McGehee, W., and E. B. Owen, "Authorized and Unauthorized Rest Pauses in Clerical Work." *Journal of Applied Psychology,* 1940, **24,** 605–614.

McGregor, D., "The Attitudes of Workers toward Layoff Policy." *Journal of Abnormal and Social Psychology,* 1939, **34,** 179–199.

———, "Conditions of Effective Leadership in the Industrial Organization." *Journal of Consulting Psychology,* 1944, **8,** 55–63.

McIver, R. M., *Group Relations and Group Antagonisms.* New York: Harper & Brothers, 1944.

McMurry, R. N., "Efficiency, Work-Satisfaction and Neurotic Tendency; A Study of Bank Employees." *Personnel Journal,* 1932, **11,** 201–210.

———, "Management Mentalities and Worker Reactions." *Advanced Management,* 1942, **7,** 165–172.

———, "Management Reactions to Employee Opinion Polls." *Journal of Applied Psychology,* 1946, **30,** 212–219.

———, "Opinion Poll, Follow-up Interview and Exit-Interview as Morale Builders in Industry." *American Journal of Orthopsychiatry,* 1945, **15,** 348–350.

———, "Validating the Patterned Interview." *Personnel,* 1947, **23,** 263–272.

Melton, A. W. (ed.), *Apparatus Tests.* Army Air Forces, Aviation Psychology Program Research Reports, No. 4. Washington, D.C.: Government Printing Office, 1948.

Metropolitan Life Insurance Company, *The Accident-prone Employee.* New York: Safety Bureau, The Company, 1930, reprinted 1949.

———, *Developing Safe Employees.* New York: Safety Bureau, The Company, 1946.

———, *Foreman's Safety Conferences.* New York: Safety Bureau, The Company, 1923, reprinted 1947.

Mezerik, A. G., "The Factory Manager Learns the Facts of Life." *Harper's Magazine,* 1943, **187,** 289–297.

Miles, G. E., and A. Angles, "The Influence of Short Time on Speed of Production." *Journal of the National Institute of Industrial Psychology,* 1925, **2,** 300–302.

———, and O. Skilbeck, "An Experiment on Change of Work." *Journal of the National Institute of Industrial Psychology,* 1923, **1,** 236–239.

Miller, D. C., "The Measurement of National Morale." *American Sociological Review,* 1941, **6,** 487–499.

Minton, J., "The One-eyed Worker." *British Journal of Ophthalmology,* 1945, **29,** 472–476.

Mitchell, A., and T. W. Forbes, "Design of Sign Letter Sizes." *Proceedings of American Society of Civil Engineers,* 1942, **68,** 95–104.

Mogenson, A. H., *Common Sense Applied to Motion and Time Study.* New York: McGraw-Hill Book Company, Inc., 1932.

———, "Work Simplification in the Office." *American Management Association, Office Management Series,* 1938, No. 82, 11–27.

Mohrhardt, F. J., and R. P. Everett, "Time-Saving Methods in Selecting Typists and Stenographers." *Public Personnel Review,* 1942, **3,** 205–209.

Moore, B. V., and G. W. Hartman, *Readings in Industrial Psychology.* New York: Appleton-Century-Crofts, Inc., 1931.

———; H. C. Taylor; and E. N. Hay, "Values of Psychology in Industrial Management." *American Management Association, Personnel Series,* No. 43, 1940.

Morrow, R. L., *Time Study and Motion Economy, with Procedures for Methods Improvement.* New York: The Ronald Press Company, 1946.

Münsterberg, Hugo, *Psychology and Industrial Efficiency.* Boston: Houghton Mifflin Company, 1913.

Mundel, M. E., *Motion and Time Study Workbook* (2nd ed.). Ann Arbor, Mich.: Edwards Brothers, Inc., 1944.

———, *Systematic Motion and Time Study.* New York: Prentice-Hall, Inc., 1947.

Munson, E. L., *The Management of Men.* New York: Henry Holt & Company, Inc., 1921.

Murray, H. A., and D. W. MacKinnon, "Assessment of O.S.S. Personnel." *Journal of Consulting Psychology,* 1946, **10,** 76–80.

Muscio, B., "Feeling-Tone in Industry." *British Journal of Psychology,* 1921–1922, **12,** 150–162.

———, "The Influence of the Form of the Question." *British Journal of Psychology,* 1916, **8,** 351–389.

———, *Lectures on Industrial Psychology* (2nd ed.). New York: E. P. Dutton & Company, Inc., 1920.

Myers, C. S., *Industrial Psychology.* New York: W. W. Norton & Company, Inc., 1926.

Myrdal, G., *An American Dilemma.* New York: Harper & Brothers, 1944.

National Education Association, National Commission on Safety Education, *Let's Teach Driving; An Administrative Guide Book.* Washington, D.C.: The Association, 1947.

National Industrial Conference Board, *Personnel Practices in Factory and Office.* New York: The Board, Studies in Personnel Policy, No. 23, 1940; No. 59; 1943; No. 88, 1948.

———, *Quick Training Procedures.* New York: The Board, Studies in Personnel Policy, No. 26, 1940.

———, *Selecting Training, and Upgrading Supervisors, Instructors, Production Workers.* New York: The Board, Studies in Personnel Policy, No. 37, 1941.

———, *Some Problems in Wage Incentive Administration.* New York: The Board, Studies in Personnel Policy, No. 19, 1940.

———, *Training for Industry.* New York: The Board, Research Report, No. 37, August, 1937.

———, *Training Solutions for Company Problems: A. A Program Giving Special Attention to the Development of Executive and Supervisory Personnel.* New York: The Board, Studies in Personnel Policy, No. 15, 1939; *B. Program Giving Special Attention to the Skill of Nonsupervisory Production Workers,* Studies in Personnel Policy, No. 18, 1940; *C. Programs Designed for Sales Personnel.* Studies in Personnel Policy, No. 22, 1940.

National Resources Planning Board, *Human Conservation.* Washington, D.C.: Government Printing Office, 1943.

National Retail Dry Goods Association, *Current Operating and Personnel Problems.* New York: The Association, 1946, pp. 91–97.

National Safety Council, Inc., *Accident Facts.* Chicago: The Council, published annually.

———, *Accident Prevention Manual for Industrial Operations.* Chicago: The Council, 1946.

———, *America's Traffic Safety Champions—The National Traffic Safety Contest.* Chicago: The Council, 1945.

———, *Committee on Tests for Intoxication,* Street and Highway Traffic Section, 1940 Report. Chicago: The Council, 1940.

———, *Industrial Safety and Health; A Bibliography.* Chicago: The Council, 1945.

———, *Practical Methods for Reducing Fatigue,* Safe Practices Pamphlet, No. 50. Chicago: The Council, 1922.

Navy Department, Training Section, Departmental Services, Division of Shore Establishments and Civilian Personnel, *Report No. I. A Practical Experiment in Simplified Keyboard Retraining; Report No. II. A Comparison of Typist Improvement from Training on the Standard Keyboard and Retraining on the Simplified Keyboard.* Washington, D.C.: Navy Department, 1944.

Newbold, E. M., *A Contribution to the Study of the Human Factor in the Causation of Accidents.* Lon-

don: Industrial Fatigue Research Board Report No. 34, 1926.

Newhall, S. M., "The Reliability of Order of Merit Evaluations of Advertisements." *Journal of Applied Psychology,* 1930, **14,** 532–548.

Newton, A. B.; F. C. Houghten; C. Gutberlet; and R. W. Qualley, "Summer Cooling Requirements of 275 Workers in an Air Conditioned Office." *Heating, Piping and Air Conditioning,* 1937, **9,** 758–766.

"Northwestern Establishes Two Police Schools." *Public Management,* 1932, **14,** 103–104.

Northwestern University Traffic Institute, *Accident Investigation Manual.* Evanston: Northwestern University Traffic Institute, 1946.

Nyman, R. C., *Union-Management Cooperation in the "Stretch-Out."* New Haven, Conn.: Yale University Press, 1934.

Oakley, C. A., "Accident Prevention in Industry." *Occupational Psychology,* 1942, **16,** 111–124.

Odell, M., Jr., "Social Recognition as a Work Incentive." *Personnel Administration,* 1940, **2,** 11–13.

Office of Education, Vocational Division, *Training for Police Service.* Washington, D.C.: The Printing Office, Vocational Bulletin No. 197, 1938.

Ordway, S. H., and J. C. Laffan, "Approaches to the Measurement and Reward of Effective Work of Individual Government Employees." *National Municipal Review,* 1935, **24,** 555–601.

O'Rourke, L. J., "Measuring Judgment and Resourcefulness." *Personnel Journal,* 1929, **7,** 427–440.

———, *A New Emphasis in Federal Personnel Research.* Washington, D.C.: Government Printing Office, 1930.

———, "Saving Dollars and Energy by Personnel Research." *Journal of Personnel Research,* 1926, **9–10,** 351–364; **11,** 433–450.

Osborne, E. E., *The Output of Women Workers in Relation to Hours of Work in Shell-Making.* London: Industrial Fatigue Research Board Report No. 2, 1919.

———, and H. M. Vernon, *The Influence of Temperature and Other Conditions on the Frequency of Industrial Accidents.* London: Industrial Fatigue Research Board Report No. 19, 1922.

Palmer, D. L.; E. R. Purpus; and L. O. Stockford, "Why Workers Quit." *Personnel Journal,* 1944, **23,** 111–119.

Palmer, G. L., "The Convertibility List of Occupations and the Problems of Developing It." *American Statistical Association Journal,* 1939, **34,** 693–708.

Palmer, R. A., "How Good Lighting Can Contribute to Safety." *Illuminating Engineering,* 1940, **35,** 361–371.

Parks, D. S., "Survey of the Training and Qualifications of Personnel Executives." *Personnel Journal,* 1948, **26,** 256–266.

Paterson, D. G., and J. J. Jenkins, "Communication between Management and Worker." *Journal of Applied Psychology,* 1948, **32,** 71–80.

———, and S. H. Stone, "Dissatisfaction with Life Work among Adult Workers." *Occupations,* 1942, **21,** 219–221.

Paynter, R. H., "A Psychological Study of Trademark Infringement." *Archives of Psychology,* 1920, **6,** No. 42.

Physical Society, The Colour Group, *Report on Defective Colour Vision in Industry.* London: The Society, 1946.

Pigors, P. J. W., and C. A. Myers, *Personnel Administration.* New York: McGraw-Hill Book Company, Inc., 1947.

Pitt, F. H. G., *Reports of the Committee upon the Physiology of Vision: XIV. Characteristics of Dichromatic Vision with an Appendix on Anomalous Trichromatic Vision.* London: Medical Research Council, Special Report Series, 1935, Ser. 200.

Pitts, G. C., et al., "Work in the Heat as Affected by Intake of Water, Salt and Glucose." *American Journal of Physiology,* 1944, **142,** 253–259.

Planty, Earl G.; W. S. McCord; and C. A. Efferson, *Training Employees and Managers.* New York: The Ronald Press Company, 1948.

Politz, A., "Can an Advertiser Believe What Surveys Tell Him?" *Printers' Ink,* 1946, **215** (April 5), 23–25.

Presgrave, Ralph, *The Dynamics of Time Study* (2nd ed.). New York: McGraw-Hill Book Company, Inc., 1945.

Quayle, M. S., "A Study of Some Aspects of Satisfaction in the Vocation of Stenography." *Teachers College, Columbia University, Contribution to Education,* 1935, No. 659.

Rados, William, *How to Select Better Salesmen.* New York: Prentice-Hall, Inc., 1946.

Raphael, W. A., "A Technique for Surveying Employees' Opinions and Attitudes." *Occupational Psychology,* 1944, **18,** 165–173.

Reid, K. M., and H. J. Channon, "Studies in Fundamentals of Highway Lighting." *Transactions of the Illuminating Engineering Society,* 1936, **31,** 119–162.

Reitell, C., *Training Workers and Supervisors.* New York: The Ronald Press Company, 1941.

Rennie, T. A. C.; G. Swackhamer; and L. E. Woodward, "Toward Industrial Mental Health; An Historical Review." *Mental Hygiene,* 1947, **31,** 66–68.

Reynolds, W., "Selecting Music for the Factory." *Personnel,* 1943, **20,** 95–98.

Rice, S. A., "Stereotypes: I. A Source of Error in Judging Human Character." *Journal of Personnel Research,* 1926, **5,** 267–276.

Ripin, R., and P. F. Lazarsfeld, "The Tactile-Kinaesthetic Perception of Fabrics with Emphasis on their Relative Pleasantness." *Journal of Applied Psychology,* 1937, **21,** 198–224.

Roberts, E. B., "Tests to Determine Objectively the Effectiveness of an Industrial Relations Program." *American Management Association, Office Management Series,* 1938, No. 84.

Robinson, O. P., *Retail Personnel Relations.* New York: Prentice-Hall, Inc., 1940.

Roethlisberger, F. J., *Management and Morale.* Cambridge, Mass.: Harvard University Press, 1941.

———, and W. J. Dickson, *Management and the Worker.* Cambridge, Mass.: Harvard University Press, 1939.

Roper, E., "Classifying Respondents by Economic Status." *Public Opinion Quarterly,* 1940, **4,** 270, 273.

Roper, V. J., and E. A. Howard, "Seeing with Motor Car Headlamps." *Transactions of the Illuminating Engineering Society,* 1938, **33,** 417–438.

Roslow, S., and A. B. Blankenship, "Phrasing the Question in Consumer Research." *Journal of Applied Psychology,* 1939, **23,** 612–622.

———; W. H. Wulfeck; and P. G. Corby, "Consumer and Opinion Research; Experimental Studies on the Form of the Question." *Journal of Applied Psychology,* 1940, **24,** 334–346.

Rothe, H. F., "Output Rates among Butter-Wrappers: I. Work Curves and Their Stability." *Journal of Applied Psychology,* 1946, **30,** 199–211.

Rudolph, H. J., *Four Million Inquiries from Magazine Advertising.* New York: Columbia University Press, 1936.

Rupp, H., "Untersuchungen zur Fahrerprüfung bei der deutschen Reichspost und bei den städtischen Strassenbahnen der Gemeine Wien." *Psychotechnische Zeitschrift,* 1926, **1,** 157–165.

Sachs, H., "Studien zur Eignungsprüfung der Strassenbahnführer." *Zeitschrift für angewandte Psychologie,* 1920, **17,** 199–225.

Sampter, H. C., *Motion Study.* New York: Pitman Publishing Corporation, 1941.

Schaefer, V. G., *Safety Supervision.* New York: McGraw-Hill Book Company, Inc., 1941.

———, et al., *Industrial Supervision:* I. *Organization;* II. *Controls.* New York: McGraw-Hill Book Company, Inc., 1941.

Schlosberg, H., "A Comparison of Five Shaving Creams by the Method of Constant Stimuli." *Journal of Applied Psychology,* 1941, **25,** 401–407.

Schneidman, E. S., "A Note on the Experimental Study of the Appraisal Interview." *Journal of Applied Psychology,* 1943, **27,** 196–205.

Schuster, O., *Techniques of Training Personnel.* Pasadena, Cal.: California Institute of Technology, 1946.

Scott, I. D., and C. J. Lindley, "The Advisement and Guidance Program of the Veterans Administration." *American Psychologist,* 1946, 190–200.

Scott, W. D., *Influencing Men in Business* (2nd ed.). New York: The Ronald Press Company, 1916.

Selling, L. S., "The Psychological Approach to the Traffic Problem." *Scientific Monthly,* 1937, **44,** 547–554.

Seymour, A. H., "Suggestions for Management Selection and Training." *Occupational Psychology,* 1943, **17,** 186–193.

Seymour, W. D., *The Heating, Ventilation and Lighting of School Buildings.* London: Oxford University Press, 1939.

Shepherd, G. H., "Effect of Rest Periods on Production." *Personnel Journal.* 1928, **7,** 186–202.

Simonson, E., and N. Enzer, "Effect of Short Rest Pauses in Standing and Sitting Position on the Efficiency of Muscular Work." *Journal of Industrial Hygiene,* 1941, **23,** 106–111.

Sinkey, J. T., "Methods of Study in Bank Office Work." *American Management Association, Office Management Series,* 1938, No. 82, 4–10.

Sisson, D. E., "Measuring Minds." *Army Information Digest,* 1947, **2,** 43–48.

Sleight, R. B., "The Effect of Instrument Dial Shape on Legibility." *Journal of Applied Psychology,* 1948, **32,** 170–187.

Slocombe, C. S., "The Psychology of Safety." *Personnel Journal,* 1941, **20,** 42–49, 105–112.

———, and E. E. Brakeman, "Psychological Tests and Accident Proneness." *British Journal of Psychology,* 1930, **21,** 29–38.

Smith, E. D., *Psychology for Executives* (rev. ed.). New York: Harper & Brothers, 1934.

Smith, H. C., "Music in Relation to Employee Attitudes, Piece-Work Production and Industrial Accidents." *Applied Psychology Monographs,* 1947, No. 14.

Smith, M., "The Handbook of Industrial Psychology." New York: Philosophical Library, 1944.

Snell, A. C., "Subnormal Vision and Occupational Attitude." *New York State Journal of Medicine,* 1941, **41,** 1165–1171.

———; A. Culler; and H. S. Kuhn, "The Field of Industrial Ophthalmology." *Advanced Management,* 1942, **7,** 91–94.

Spriegel, W. R., and E. Schulz, *Elements of Supervision.* New York: John Wiley & Sons, Inc., 1942.

———; J. C. Staehle; and R. W. Kleemeier, "The Role of Psychology in Absences." *Proceedings of the Office Management Association,* 1943, pp. 70–76.

Stack, H. J., et al., *Careers in Safety.* New York: Funk & Wagnalls Company, 1945.

———, and E. B. Siebrecht, *Education for Safe Living.* New York: Prentice-Hall, Inc., 1942.

Stagner, R.; J. N. Rich; and R. H. Britten, Jr., "Job Attitudes: I. Defense Workers." *Personnel Journal,* 1941, **20,** 90–97.

Staples, P. C., "Music in a Famous Utility." *Etude,* 1942, **60,** 386.

Starch, D., *How to Develop Your Executive Ability.* New York: Harper & Brothers, 1943.

———, *Principles of Advertising.* Washington, D.C.: Shaw Publishing Company, 1923.

———, "Testing the Effectiveness of Advertisements." *Harvard Business Review,* 1923, **2,** 464–475.

——— (comp.), *An Analysis of Five Million Inquiries.* Cambridge, Mass.: The Compiler, 1930.

———, et al., *Controlling Human Behavior.* New York: The Macmillian Company, 1937.

Stevens, A. F., Jr., "Accidents of Older Workers; Relation of Age to Extent of Disability." *Personnel Journal*, 1929, **8**, 138–145.

Strong, E. K., Jr., "The Relative Merit of Advertisements." *Archives of Psychology*, 1914, No. 17.

———, and R. S. Uhrbrook, *Job Analysis and the Curriculum*. Baltimore, Md.: The Williams & Wilkins Company, 1923.

Stump, N. F., "Industrial Safety and Visual Functions." *Journal of Psychology*, 1945, **20**, 369–374.

———, "A Statistical Study of Visual Functions and Industrial Safety." *Journal of Applied Psychology*, 1945, **29**, 467–470.

Sturrock, Walter, "Levels of Illumination." *Magazine of Light*, 1945, **14**, 26–36.

Sulzman, J. H.; E. B. Cook; and N. R. Bartlett, "The Validity and Reliability of Heterophoria Scores Yielded by Three Commercial Optical Devices." *Journal of Applied Psychology*, 1948, **32**, 56–62.

Taft, R., and A. Mullins, "Who Quits and Why." *Personnel Journal*, 1946, **24**, 300–307.

Taubman, R. E., "The Special Leadership Program at the Signal Corps Officer Candidate School." *Journal of Applied Psychology*, 1947, **31**, 82–90.

Taylor, F. V., "Psychology at the Naval Research Laboratory." *American Psychologist*, 1947, **2**, 87–92.

———, F. W., *Principles of Scientific Management*. New York: Harper & Brothers, 1911.

Technical Manual 28–210, War Department. Washington, D.C.: Government Printing Office, 1945.

Thompson, L. A., "Measuring Susceptibility to Monotony." *Personnel Journal*, 1929, **8**, 172–193.

Tiffin, J., "Vision and Industrial Production." *Illuminating Engineering*, 1945, **40**, 239–257.

———; B. T. Parker; R. W. Habersat, "The Analysis of Personnel Data in Relation to Turnover on a Factory Job." *Journal of Applied Psychology*, 1947, **31**, 615–616.

Tinker, M. A., "Illumination Standards." *American Journal of Public Health*, 1946, **36**, 963–973.

Toops, H. A., "Predicting the Returns from Questionnaires: A Study in the Utilization of Qualitative Data." *Journal of Experimental Education*, 1935, **3**, 204–215.

Trabue, M. R., and Beatrice J. Dvorak, "A Study of the Needs of Adults for Further Training." *Bulletins of the Employment Stabilization Research Institute, University of Minnesota*, 1934, **3**, No. 3, 129–149.

Training within Industry Foundation, *Training within Industry Materials*. Summit, N. J.: The Foundation, 1945.

Uhrbrook, R. S., "Attitudes of 4,430 Employees." *Journal of Social Psychology*, 1934, **5**, 365–377.

Unger, E. W., and E. T. Burr, *Minimum Mental Age Levels of Accomplishment*. Albany, N. Y.: University of the State of New York, 1931.

U. S. Employment Service, *Oral Trade Questions*. Washington, D. C.: Government Printing Office, 1940.

———, *Training and Reference Manual for Job Analysis*. Washington, D. C.: United States Employment Service, 1944.

Vander-Meer, A. W., "The Economy of Time in Industrial Training; An Experimental Study of the Use of Sound Films in the Training of Engine Lathe Operators." *Journal of Educational Psychology*, 1945, **36**, 65–90.

Vernon, H. M., "An Experience of Munition Factories during the Great War." *Occupational Psychology*, 1940, **14**, 1–13.

———, "Industrial Fatigue in Relation to Atmospheric Conditions." *Physiological Review*, 1928, **8**, 130–150.

———, "Prevention of Accidents." *British Journal of Industrial Medicine*, 1945, **2**, 1–9.

———, *On the Extent and the Effects of Variety in Repetitive Work*. London: Industrial Fatigue Research Board Report No. 26, 1924.

———, and T. Bedford, *The Influence of Rest-Pauses on Light Industrial Work*. London: Industrial Fatigue Research Board Report No. 25, 1924.

——— and ———, *The Relation of Atmospheric Conditions to the Working Capacity and Accident Rate of Coal Miners*. London: Industrial Fatigue Research Board Report No. 39, 1927.

———; ———; and C. G. Warner, *A Study of Absenteeism in a Group of Ten Collieries*. London: Industrial Fatigue Research Board Report No. 51, 1928.

Veysey, V. V., "Wage Incentives and War Production." *Personnel Journal*, 1944, **23**, 42–50.

Viteles, M. S., *Industrial Psychology*. New York: W. W. Norton & Company, Inc., 1932.

———, "Industrial Psychology in Russia." *Occupational Psychology*, 1938, **12**, 85–103.

———, *The Science of Work*. New York: W. W. Norton & Company, Inc., 1934.

———, "Visual Standards and Flight Performance." *Journal of Aviation Medicine*, 1947, **18**, 528–547.

———, and K. R. Smith, "An Experimental Investigation of the Effects of Change in Atmospheric Conditions and Noise upon Performance." *Heating, Piping, and Air Conditioning*, 1946, **18**, 107–112.

Vogeler, R. F., "A Job Information Training Program for Interviewers." *Employment Service News*, 1939, **6**, No. 1, 5–7.

Vollmer, A., *Police and Modern Society*. Berkeley, Cal.: University of California Press, 1936.

Watkins, J. G., "Offensive Psychological Warfare." *Journal of Consulting Psychology*, 1942, **6**, 117–122.

Watson, G., and J. M. Seidman, "Dissatisfaction in Work." *Journal of Social Psychology*, 1941, **13**, 183–186.

Watson, W. F., "Strikes and the Human Factor." *Human Factor*, 1935, **9**, 150–157.

Webb, E. T., and J. B. Morgan, *Strategy in Handling*

People. Garden City, N. Y.: Garden City Publishing Company, 1932.

Weiss, A. P., and A. R. Lauer, *Psychological Principles in Automotive Driving*. Columbus, Ohio: Ohio State University, 1931.

Weston, H. C., "Brightness, Well-Being and Work." *British Journal of Industrial Medicine*, 1944, **1**, 180–196.

———, *The Relation between Illumination and Visual Efficiency; The Effect of Brightness Contrast*. London: Industrial Health Research Board Report No. 87, 1945.

———, and S. Adams, *The Effect of Eye Strain on the Output of Linkers in the Hosiery Industry*. London: Industrial Fatigue Research Board Report No. 40, 1927.

——— and ———, *The Effect of Noise on the Performance of Weavers*. London: Industrial Health Research Board Report No. 65, 1932.

——— and ———, *On the Relief of Eye Strain among Persons Performing Very Fine Work*. London: Industrial Fatigue Research Board Report No. 49, 1927.

——— and ———, *The Performance of Weavers under Varying Conditions of Noise*. London: Industrial Health Research Board Report No. 70, 1935.

White, W., *The Psychology of Dealing with People*. New York: The Macmillan Company, 1936.

Whitehead, T. N., *The Industrial Worker*. Cambridge: Harvard University Press, 1938.

———, *Leadership in a Free Society*. Cambridge, Mass.: Harvard University Press, 1936.

Wickert, F. (ed.), *Psychological Research on Problems of Redistribution*. Army Air Forces, Aviation Psychology Program Research Reports, No. 14. Washington, D. C.: Government Printing Office, 1947.

Wiggers, C. J., *Physiology in Health and Disease*. Philadelphia: Lea & Febiger, 1934.

Wilder, Frances Farmer, *Radio's Daytime Serial*. New York: The Columbia Broadcasting System, 1945.

Williams, Whiting, *Mainsprings of Men*. New York: Charles Scribner's Sons, 1925.

Winslow, C. E. A.; L. P. Herrington; and A. P. Gagge, "The Reactions of the Clothed Human Body to Variations in Atmospheric Humidity." *American Journal of Physiology*, 1938, **124**, 692–703.

Wolff, J. L., "Employee Morale-Warnings and Hints." *Advanced Management*, 1941, **6**, 104–107.

Wolfle, D., "Military Training and the Useful Parts of Learning Theory." *Journal of Consulting Psychology*, 1946, **10**, 73–75.

Woods, W. A., "Employee Attitudes and Their Relation to Morale." *Journal of Applied Psychology*, 1944, **28**, 285–301.

Wren, H. A., "The Drives of Workers." *Personnel Journal*, 1942, **20**, 317–323.

Wright, W. D., *Researches on Normal and Defective Color Vision*. St. Louis: The C. V. Mosby Company, 1947.

Wulfeck, W. H., "Psychological Findings and Defense Production." *Personnel*, 1940, **17**, 96–107.

———, "The Role of the Psychologist in Market and Advertising Research." *Journal of Applied Psychology*, 1945, **29**, 95–102.

———, "Social Changes in Relation to Industrial Management." *Journal of Social Psychology*, 1942, **15**, 145–151.

Wyatt, S., *Rest Pauses in Industry*. London: Industrial Fatigue Research Board Report No. 42, 1927.

———, "Workers and Machines." *Occupational Psychology*, 1939, **13**, 249–257.

———, et al., *A Study of Variations in Output*. London: Industrial Health Research Board Emergency Report No. 5, 1944.

———, and J. A. Fraser, *The Comparative Effect of Uniformity and Variety in Work*. London: Industrial Health Research Board Report No. 52, 1928.

———; ———; and G. G. L. Stock, *The Effects of Monotony in Work; A Preliminary Inquiry*. London: Industrial Health Research Board Report No. 56, 1929.

———; ———; and ———, *Fan Ventilation in a Humid Weaving Shed*. London: Industrial Health Research Board Report No. 37, 1936.

———, and J. N. Langdon, *The Machine and the Worker*. London: Industrial Health Research Board Report No. 82, 1938.

———; ———; and G. G. L. Stock, *Fatigue and Boredom in Repetitive Work*. London: Industrial Health Research Board Report No. 77, 1937.

Yagloglou, C. P., "Modern Ventilation Principles and Their Application to Sedentary and Industrial Life." *Journal of Personnel Research*, 1925, **3**, 375–387.

Yoder, Dale, *Personnel Management and Industrial Relations*. New York: Prentice-Hall, Inc., 1942.

Yordan, E. L., *Techniques for the Control of Motor-Vehicle Accidents*. New York: Center for Safety Education, Division of General Education, New York University, 1941.

D. EDUCATIONAL PSYCHOLOGY

Adkins, D. C., *Construction and Analysis of Achievement Tests*. Washington, D. C.: Government Printing Office, 1947.

Adler, M. J., *How to Read a Book*. New York: Simon & Schuster, Inc., 1940.

Allen, F. M. B., "Indigestion in Infancy." *Practitioner*, 1944, **152**, 225–228.

Allen, R. D., *A Manual for the Use of the Providence Class Personnel Charts*. New York: Inor Publishing Company, 1935.

American Automobile Association, *Sportsmanlike Driving*. Washington, D. C.: The Association, 1938.

American Council on Education, *The Improvement of Teacher Education*. Washington, D. C.: Commission on Teacher Education, The Council, 1946.

———, *Manual for the 1941 Revision of the American Council on Education Cumulative Record Card for*

Junior and Senior High Schools. Washington, D. C.: The Council, 1943.

———, *Test C1 and Test C2: Reading Comprehension.* New York: Cooperative Test Service, 1943.

Anastasi, A., "Practice and Variability; A Study in Psychological Method." *Psychological Monographs,* 1934, **45,** No. 5.

Anderson, I. H., "Education and Psychology," Chap. IV in "Psychology and Methods in the High School and College." *Review of Educational Research,* 1938, **8,** 19–24.

Arm, D. L., "Accelerated Programs in Mechanical Engineering." *Journal of Engineering Education,* **35,** 500–502.

Arthur, G., *A Point Scale of Performance Tests, Revised Form II.* New York: The Psychological Corporation, 1947.

Ayer, F. C., "School Progress," Chap. II in *Pupil Personnel, Guidance, and Counseling.* Washington, D. C.: American Educational Research Association, 1933.

Ayers, L. P., *Laggards in Our Schools.* New York: Russell Sage Foundation, 1909.

Baehne, G. W. (ed.), *Practical Applications of the Punched Card Method in Colleges and Universities.* New York: Columbia University Press, 1935.

Baker, G. D., "Individualizing Instruction in the Junior High School." *Harvard Educational Review,* 1938, **8,** 495–506.

Baker, H. J., *Introduction to Exceptional Children.* New York: The Macmillan Company, 1944.

Barker, R. G.; J. S. Kounin; and H. F. Wright, *Child Behavior and Development.* New York: McGraw-Hill Book Company, Inc., 1943.

Batson, W. H., "Acquisition of Skill." *Psychological Monographs,* 1916, No. 21.

Beatty, J. D., "Student Personnel Work; Occupational Placement," in W. S. Monroe (ed.), *Encyclopedia of Educational Research.* New York: The Macmillan Company, 1941.

Bellingrath, G. D. C., "Qualities Associated with Leadership in the Extra Curricular Activities of the High School." New York: *Teachers College, Columbia University, Contributions to Education,* 1930, No. 399.

Bender, I. E.; H. A. Imus; J. W. M. Rothney; C. Kemple; and M. R. England, *Motivation and Visual Factors; Individual Studies of College Students.* Hanover, N. H.: Dartmouth College Publications, 1942.

Bennett, M. E., "An Evaluation of an Orientation or Group-Guidance Program in a Four-Year Junior College." *Abstracts of Dissertations,* Stanford University, 1937–1938, **13,** 121–128.

Bentley, J. E., *Problem Children.* New York: W. W. Norton & Company, Inc., 1936.

———, *Superior Children.* New York: W. W. Norton & Company, Inc., 1937.

Berg, I. A., and R. P. Larson, "A Comparative Study of Students Entering College One or More Semesters before Graduation from High School." *Journal of Educational Research,* 1945, **39,** 33–41.

Billett, R. O., *Administration and Supervision of Homogeneous Grouping.* Columbus: Ohio State University Press, 1932.

———, *Fundamentals of Secondary-School Teaching.* Boston: Houghton Mifflin Company, 1940.

Bird, C., and D. M., *Learning More by Effective Study.* New York: Appleton-Century-Crofts, Inc., 1945.

Bittner, R. H., "Quantitative Predictions from Qualitative Data; Predicting College Entrance from Biographical Information." *Journal of Psychology,* 1945, **19,** 97–108.

Blaesser, W. W., *Student Personnel Work in the Postwar College.* Washington, D. C.: American Council on Education, 1945, Series 6, No. 6.

Blair, G. M., *Diagnostic and Remedial Teaching in Secondary Schools.* New York: The Macmillan Company, 1946.

Bode, Boyd H., *How We Learn.* New York: D. C. Heath & Company, 1940.

Bond, E. A., "Tenth-Grade Abilities and Achievements." *Teachers College, Columbia University, Contributions to Education,* 1940, No. 813.

Book, W. F., and L. Norwell, "The Will to Learn." *Pedagogical Seminary,* 1922, **29,** 305–362.

Boyer, Philip A., "Pupil Personnel, Guidance and Counseling," Chap. II, B., "School Progress." *Review of Educational Research,* 1939, **9,** 168–172.

———, *Report of Division of Educational Research and Results for the Year Ended June 30, 1937.* Philadelphia: Board of Education, 1937.

Boynton, R., "Student Personnel Work: 1. Student Health Services," in W. S. Monroe (ed.), *Encyclopedia of Educational Research.* New York: The Macmillan Company, 1941.

Bradley, P., et al., "Counseling." *Journal of the National Association of Deans of Women,* 1945, **8,** 118–123.

Bradshaw, F. F., "Student Personnel Work: 1. Admission Procedures," in W. S. Monroe (ed.), *Encyclopedia of Educational Research.* New York: The Macmillan Company, 1941.

Briggs, L. J., "Intensive Classes for Superior Students." *Journal of Educational Psychology,* 1947, **38,** 207–215.

Brown, A. H., and C. L. Nemzek, "A Comparative Study of College Success of Recommended and Non-recommended Students from One Detroit High School." *Journal of Social Psychology,* 1944, **20,** 277–281.

Brown, M., "Leadership among High School Pupils." *Teachers College, Columbia University, Contributions to Education,* 1930, No. 399.

Bryan, W. L., and N. Harter, "Studies in the Psychology and Physiology of the Telegraphic Language." *Psychological Review,* 1897, **4,** 27–55; 1899, **6,** 345–375.

Buswell, G. T., "How Adults Read." *Supplementary Educational Monographs,* 1937, No. 45.

Butts, R. F., *The College Charts Its Course.* New York: McGraw-Hill Book Company, Inc., 1939.

Carmichael, L. (ed.), *Manual of Child Psychology*. New York: John Wiley & Sons, Inc., 1946.

Carroll, H. A., *Genius in the Making*. New York: McGraw-Hill Book Company, Inc., 1940.

Cattell, P., *The Measurement of Intelligence of Infants and Young Children*. New York: The Psychological Corporation, 1940.

Cattell, R. B., *Crooked Personalities in Childhood and After*. New York: Appleton-Century-Crofts, Inc., 1938.

Chamberlin, Charles Dean, et al., *Did They Succeed in College?* New York: Harper & Brothers, 1942.

Child, I. L., "Children's Preference for Goals Easy or Difficult to Obtain." *Psychological Monographs*, 1946, No. 4.

———; E. H. Potter; and E. M. Levine, "Children's Textbooks and Personality Development; An Exploration in the Social Psychology of Education." *Psychological Monographs*, 1946, **60**, No. 3.

Clark, G. Y., and E. B. South, "Some Suggestions for Measuring Nursing Aptitude." *American Journal of Nursing*, 1935, **35**, No. 9.

Cole, L., *The Background for College Teaching*. New York: Rinehart & Company, Inc., 1940.

———, *The Psychology of Adolescence* (3rd rev. ed.). New York: Rinehart & Company, Inc., 1948.

———, and J. J. B. Morgan, *Psychology of Childhood and Adolescence*. New York: Rinehart & Company, Inc., 1947.

Columbia University, Teachers College, International Institute, *Yearbook, 1942–1944:* Vol. 2. *Higher Education in English-Speaking Countries*, ed. I. L. Kandel. New York: The University, 1943.

———, ———, Members of Education 335–336 M, 1937–38, *Laboratory Techniques of Teaching*. New York: The University, 1938.

Conrad, H. S., *Characteristics and Uses of Item-Analysis Data*. OSRD Report No. 4034, Applied Psychology Panel, NDRC, 1944.

Cook, W. W., *Grouping and Promotion in the Elementary School*. Minneapolis: University of Minnesota Press, 1941.

Cooke, D. H., "A Study of School Surveys with Regard to Age-Grade Distribution." *Peabody Journal of Education*, 1931, **8**, 259–266.

Corey, S. M., and V. Mook, "Methods of Teaching." *Review of Educational Research*, 1942, **12**, 299–304.

Cornell, E. L., "The School Psychologist's Contribution." *Yearbook of Elementary School Principals*, 1936, **15**, 561–566.

———, *Variability of Children of Different Ages and Its Relation to School Classification and Grouping*. Albany, N. Y.: University of the State of New York, 1937.

Corning, H. M., *After Testing—What?* Chicago: Scott, Foresman & Company, 1926.

Cornwell, O. K., "The Psychology of Motor Skills." *Research Quarterly*, 1933, **4**, 126–130.

Counts, G. S., *The Selective Character of American Secondary Education*. Chicago: University of Chicago Press, 1922.

Covner, B. J., "Studies in Phonographic Recordings of Verbal Material." *Journal of Consulting Psychology*, 1942, **6**, 105–113, 149–153; *Journal of General Psychology*, 1944, **30**, 181–203; *Journal of Applied Psychology*, 1944, **28**, 89–98.

Cowley, W. H., "The Strategy of Coordination." *Occupations*, 1938, **16**, 724–727.

Cozens, F. W., "The Determination of the Efficiency of Learning under Different Incentive Conditions and Modes of Activity." *Research Quarterly*, 1933, **4**, 50–62.

Crawford, A. B., *Measuring Promise for Graduate Work*. New Haven, Conn.: Yale University Press, 1942.

———, and P. S. Burnham, *Forecasting College Achievement; A Survey of Aptitude Tests for Higher Education: Part I. General Considerations in the Measurement of Academic Promise*. New Haven, Conn.: Yale University Press, 1946.

Curtis, F. D., *Investigations of Vocabulary in Textbooks of Science for Secondary Schools*. Boston: Ginn & Company, 1938.

Dale, E., *Audio-Visual Methods in Teaching*. New York: The Dryden Press, 1946.

Dammon, C. F., "Admission without High School Graduation with Discussion." *Journal of American Association of College Registrars*, 1944, **19**, 471–485.

Dashiell, J. F., "A Survey and Synthesis of Learning Theories." *Psychological Bulletin*, 1935, **32**, 261–275.

Davies, D. R., "The Effect of Tuition upon the Process of Learning a Complex Motor Skill." *Journal of Educational Psychology*, 1945, **36**, 352–365.

Davis, F. B., *Item-Analysis Data*. Cambridge, Mass.: Graduate School of Education, Harvard University, 1946.

Davis, R. A., *Psychology of Learning*. New York: McGraw-Hill Book Company, Inc., 1935.

De Silva, L., "Promotion and Placement of Pupils in the Elementary School." *California Journal of Elementary Education*, 1945, **14**, 117–123.

Detchen, L., "College Education without High School Graduation." *School Review*, 1939, **47**, 182–191.

Diehl, H. S., and C. E. Shepard, *The Health of College Students*. Washington, D. C.: American Council on Education, 1939.

Eames, T. H., "Eye Conditions among Children of Premature, Full-Term and Hypermature Birth." *American Journal of Ophthalmology*, 1946, **29**, 57–63.

Eckert, Ruth E., *Outcomes of General Education*. Minneapolis, Minn.: University of Minnesota Press, 1943.

Edgerton, H. A., *Academic Prognosis in the University*. Baltimore: Warwick & York, 1930.

———, and H. A. Toops, *Academic Progress*. Columbus, Ohio: Ohio State University Press, 1929.

Eells, W. C., *The Junior College*. Boston: Houghton Mifflin Company, 1931.

———, *Surveys of American Higher Education*. New York: Carnegie Foundation for the Advancement of Teaching, 1937.

Engelhart, M. D., "Unique Types of Achievement Test Exercises." *Psychometrika*, 1942, **7**, 103-116.

Eurich, Alvin C., *The Reading Abilities of College Students; An Experimental Study*. Minneapolis, Minn.: The University of Minnesota Press, 1931.

Flanagan, J. C., *The Cooperative Achievement Tests; A Bulletin Reporting the Basic Principles and Procedures Used in the Development of Their System of Scaled Scores*. New York: Cooperative Test Service, 1939.

Flemming, Cecile W., *Pupil Adjustment in the Modern School*. New York: Teachers College, Bureau of Publications, Columbia University, 1931.

Flemming, E. G., "A Factor Analysis of the Personality of High School Leaders." *Journal of Applied Psychology*, 1935, **5**, 596–605.

Flesher, M. A., "Did They Graduate Too Young?" *Educational Research Bulletin*, 1945, **25**, 218–221.

———, "An Intensive Study of Seventy-six Women Who Obtained Their Undergraduate Degrees in Three Years or Less." *Journal of Educational Research*, 1946, **39**, 602–612.

Flexner, A., *Universities: American, English, German*. New York: Oxford University Press, 1930.

Fraser, M. G., *The College of the Future*. New York: Columbia University Press, 1937.

Froehlich, G. J., "The Prediction of Academic Success at the University of Wisconsin, 1909–1941." *Bulletin of the University of Wisconsin*, General Series, 1941, **44**, No. 2358.

Gardner, G. A., "The Mental Health of Normal Adolescents." *Mental Hygiene*, 1947, **31**, 529–540.

Garrett, A. B., "Giving College Credit in Chemistry by Examination." *Ohio Schools*, 1946, **24**, 356–357.

Garrett, H. E., "A Developmental Theory of Intelligence." *American Psychologist*, 1946, **1**, 372–378.

Garrison, K. C., *The Psychology of Exceptional Children*. New York: The Ronald Press Company, 1940.

Gates, A. I., and G. L. Bond, "Some Outcomes of Instruction in the Speyer Experimental School." *Teachers College Record*, 1936, **38**, 206–217.

———; A. T. Jersild; T. R. McConnell; and R. C. Challman, *Educational Psychology* (3rd ed.). New York: The Macmillan Company, 1948.

"General Aspects of Instruction; Learning, Teaching and the Curriculum." *Review of Educational Research*, 1942, **12**, 255–358; **15**, 193–268.

Gesell, A., "The Embryology of Behavior." New York: Harper & Brothers, 1945.

———; H. M. Halverson; H. Thompson; F. L. Ilg; B. M. Castner; L. B. Ames; and C. S. Amatrude, *The First Five Years of Life*. New York: Harper & Brothers, 1940.

———; F. L. Ilg; L. B. Ames; and G. E. Bullis, *The Child from Five to Ten*. New York: Harper & Brothers, 1946.

Good, C. V., "Colleges and Universities: VII. Methods of Teaching," in W. S. Monroe (ed.), *Encyclopedia of Educational Research*. New York: The Macmillan Company, 1941.

———, "Education, Psychology and Professional Training," Chap. XIII in "Psychology and Methods in the High School and College." *Review of Educational Research*, 1934, **4**, 445–563.

———, "Teaching in College and University." Baltimore: Warwick & York, 1929.

Goodenough, F. L., *Developmental Psychology*. New York: Appleton-Century-Crofts, Inc., 1943.

———, et al., *Minnesota Pre-School Scale*. Minneapolis: Educational Test Bureau, 1932.

Goodman, C. H., "Prediction of College Success by Means of Thurstone's Primary Abilities Tests." *Educational and Psychological Measurement*, 1944, **4**, 125–140.

"Graduate Internship Training in Psychology." *Journal of Consulting Psychology*, 1945, **9**, 243–266.

Gray, W. S. (ed.), *Reading in General Education*. Washington, D. C.: American Council on Education, 1940.

——— (ed.), "Reading and Pupil Development." *Supplementary Educational Monographs*, 1940, No. 51, Part I.

———, and C. M. Wise, *The Bases of Speech*. New York: Harper & Brothers, 1934.

Green, E. B., *Measurements of Human Behavior*. New York: The Odyssey Press, Inc., 1941.

Green, L., "A Study of Typewriting Achievement in Three High Schools." *Journal of Educational Research*, 1940, **34**, 209–217.

Haggerty, W. J., and A. J. Brumbaugh, "The Student in College and University." *North Central Association Quarterly*, 1939, **13**, 559–630; **14**, 201–226.

Hale, L. B., et al., *From School to College*. New Haven, Conn.: Yale University Press, 1939.

Hamilton, G., *Psychotherapy in Child Guidance*. New York: Columbia University Press, 1947.

Hamilton, J. A., *Toward Proficient Reading*. Claremont, Cal.: Saunders Press, 1939.

Harms, E. (ed.), *Handbook of Child Guidance*. New York: Child Care Publications, 1947.

Harrison, M. L., *Reading Readiness* (rev. ed.). Boston: Houghton Mifflin Company, 1939.

Hartshorne, H. (ed.), *From School to College*. New Haven, Conn.: Yale University Press, 1939.

Harvard University, Committee on the Objectives of a General Education in a Free Society, *General Education in a Free Society*. Cambridge, Mass.: Harvard University Press, 1945.

Hawkes, H. E.; E. F. Lindquist; and C. R. Mann (eds.), *The Construction and Use of Achievement Examinations*. Boston: Houghton Mifflin Company, 1936.

Healy, W.; A. F. Bronner; E. M. H. Baylor; and J. P. Murphy, *Reconstructing Behavior in Youth; A Study*

of Problem Children in Foster Families. New York: Alfred A. Knopf, Inc., 1929.

Heck, Arch O., *The Education of Exceptional Children; Its Challenge to Teachers, Parents and Laymen.* New York: McGraw-Hill Book Company, Inc., 1940.

Hendrickson, G., and W. H. Schroeder, "Transfer of Training in Learning to Hit a Submerged Target." *Journal of Educational Psychology,* 1941, **32,** 205–213.

Hildreth, G. H., "Educational Provisions for Slow-learning Pupils." *Educational Administration and Supervision,* 1939, **25,** 491–512.

———, "Guidance in the Lincoln School." *Teachers College Record,* 1936, **37,** 432–440.

Hooton, E. A., *A Study in Seating.* Gardner, Mass.: Heywood-Wakefield Company, 1945.

Hoppock, R., and A. Pavan, "Student Personnel Work; Vocational Information," in W. S. Monroe (ed.), *Encyclopedia of Educational Research.* New York: The Macmillan Company, 1941.

Horn, E., *Methods of Instruction in the Social Studies.* New York: Charles Scribner's Sons, 1937.

Horowitz, R., and L. B. Murphy, "Projective Methods in the Psychological Study of Children." *Journal of Experimental Education,* 1938, **7,** 133–140.

Houle, C. O., et al., *The Armed Services and Adult Education.* Washington, D. C.: American Council on Education, 1947.

Huey, Edmund B., *Psychology and Pedagogy of Reading.* New York: The Macmillan Company, 1908.

Hunter, W. S., "Experimental Studies in Learning," in C. H. Murchison (ed.), *A Handbook of General Experimental Psychology.* Worcester, Mass.: Clark University Press, 1934.

Industrial Health Research Board, *Hours of Work, Lost Time and Labor Wastage.* London: The Board, Emergency Report No. 2, 1942.

Institute for Juvenile Research, *Child Guidance Procedures.* New York: Appleton-Century-Crofts, Inc., 1938.

Iowa Silent Reading Tests. New York: Thomas Y. Crowell Company, 1944.

Imus, H. A.; J. W. M. Rothney; and R. M. Bear, *An Evaluation of Visual Factors in Reading.* Hanover, N. H.: Dartmouth College Publications, 1938.

Jacobson, C. F., "Interest Patterns and Achievement in Medical School." *Journal of the Association of American Medical Colleges,* 1942, **17,** 153–163.

Jastak, J., and S. Bijou, *Wide Range Achievement Tests.* Wilmington, Del.: Charles L. Story Company, 1944.

Jersild, A. T., *Child Psychology* (3rd ed.). New York: Prentice-Hall, Inc., 1947.

———; M. E. Chayer; C. Fehlman; G. Hildreth; and T. M. Young, *Child Development and the Curriculum.* New York: Teachers College, Columbia University, 1946.

———; B. Goldman; C. L. Jersild; and J. J. Loftus, "Studies of Elmentary School Classes in Action: I. A. Comparative Study of the Daily Occupations of Pupils in 'Activity' and 'Non-Activity' Schools." *Journal of Experimental Education,* 1941, **9,** 295–302.

———; R. L. Thorndike; B. Goldman; and J. J. Loftus, "An Evaluation of Aspects of the Activity Program in the New York City Public Elementary Schools." *Journal of Experimental Education,* 1939, **8,** 166–207.

———; ———; B. Goldman; J. W. Wrightstone; and J. J. Loftus, "A Further Comparison of Pupils in Activity and Non-Activity Schools." *Journal of Experimental Education,* 1941, **9,** 303–309.

Johnson, B. J., *Child Psychology.* Springfield, Ill.: Charles C. Thomas, Publisher, 1932.

Johnson, B. L., *What about Survey Courses?* New York: Henry Holt & Company, Inc., 1937.

Johnson, W. H., "Adjustment Teacher Service in the Chicago Elementary Schools." *Elementary School Journal,* 1937, **38,** 264–271.

Jones, A. J., "Age at Graduation from College and Success in Life." *School Review,* 1928, **33,** 184–190.

Jones, H. E., and H. S. Conrad, "The Growth and Decline of Intelligence; A Study of a Homogeneous Group between the Ages of Ten and Sixty." *Genetic Psychology Monographs,* 1933, **13,** 223–298.

Jones, L., "A Critical Analysis of the Personal Information Blank in Use at the State University of Iowa." *School and Society,* 1931, **33,** 540–544.

Katona, G., *Organizing and Memorizing.* New York: Columbia University Press, 1940.

Kelley, T. L., *Interpretation of Educational Measurements.* Yonkers, N. Y.: World Book Company, 1927.

———; G. A. Ruch; and L. M. Terman, *Stanford Achievement Tests.* Yonkers, N. Y.: World Book Company, 1940.

Kent, R. A. (ed.), *Higher Education in America.* Boston: Ginn & Company, 1930.

Kenyon, J. S., *American Pronunciation* (rev. ed.). Ann Arbor, Mich.: George Wahr, 1940.

———, and T. A. Knott, *A Pronouncing Dictionary of American English.* Springfield, Mass.: G. & C. Merriam Company, 1944.

Keys, N., *The Underage Student in High School and College.* Berkeley, Cal.: University of California, 1938.

Kiely, M. V., et al., "Postwar Problems in Student Personnel Work in College and University." *Journal of the National Association of Deans of Women,* 1945, **8,** 99–112.

Kingsley, H. L., *The Nature and Conditions of Learning.* New York: Prentice-Hall, Inc., 1946.

Kitson, H. D., "Vocational Guidance and the Theory of Probability." *School Review,* 1920, **8,** 143–150.

Krugman, M., "The Rorschach in Child Guidance." *Journal of Consulting Psychology,* 1943, **7,** 80–88.

Kuhlmann, F., *Tests of Mental Development; A Complete Scale for Individual Examination.* Minneapolis: Educational Test Bureau, 1939.

Learned, W. S., and B. D. Wood, *The Student and His Knowledge*. New York: The Carnegie Foundation for the Advancement of Teaching, 1938.

Lewis, N., *How to Read Better and Faster*. New York: Thomas Y. Crowell Company, 1944.

Lightner, H., "What Is Meant by Retardation?" *Psychological Clinic*, 1910, **4**, 121–131.

Lloyd-Jones, E. McD., "Student Personnel Work: 1. Social Development," in W. S. Monroe (ed.), *Encyclopedia of Educational Research*. New York: The Macmillan Company, 1941.

Love, L. L., and E. Lois Love, "Performance of Veterans." *Journal of Higher Education*, 1947, **18**, No. 2.

Luckiesh, M., and F. K. Moss, *Reading as a Visual Task*. New York: D. Van Nostrand Company, Inc., 1942.

Marsh, C. S., "Acceleration in the Colleges." *American Council on Education Studies*, 1943, **6**, 29.

Martens, E. H., et al., "Education of Exceptional Children and Minority Groups." *Review of Educational Research*, 1941, **11**, No. 3, 247–362.

McCall, W. A., and H. H. Bixler, *How to Classify Pupils*. New York: Teachers College, Columbia University, 1928.

McCullough, C. M., et al., *Problems in the Improvement of Reading*. New York: McGraw-Hill Book Company, Inc., 1946.

McGeoch, J. A., *The Psychology of Human Learning*. New York: Longmans Green & Company, Inc., 1942.

McGraw, M. B., "Appraising Test Responses of Infants and Young Children." *Journal of Psychology*, 1942, **14**, 89–100.

"Medical Education in the United States and Canada." *Journal of the American Medical Association*, 1943, **127**, 3; 1945, **129**, 11–12.

Melton, A. W., "Learning," in W. S. Monroe (ed.), *Encyclopedia of Educational Research*. New York: The MacMillan Company, 1941.

Merrick, N. L., "Typewriting in the University High School." *School Review*, 1941, **49**, 284–296.

Metcalfe, Z., and E. T. Burr, "A Practical Form of the Girls' Mechanical Assembly Test." *Journal of Applied Psychology*, 1936, **20**, 672–679.

Minnesota, University of, Committee on Educational Research, *Studies in Higher Education*. Minneapolis, Minn.: University of Minnesota, 1941.

Monroe, W. S. (ed.), *Encyclopedia of Educational Research*. New York: The Macmillan Company, 1941.

———, and A. Marks, "General Methods of Teaching Evaluated; Results of Research." Educational Administration and Supervision, 1938, **24**, 581–592.

Morrison, J. C., "Study of Activity Program in New York City Elementary Schools." *Curriculum Journal*, 1942, **13**, 13–16.

Mosier, C. I.; M. C. Myers; and H. G. Price, "Suggestions for the Construction of Multiple-Choice Test Items." *Educational and Psychological Measurement*, 1945, **5**, 261–271.

Murphy, L. B., "The Appraisal of Child Personality." *Journal of Consulting Psychology*, 1948, **12**, 16–19.

Myer, L. N., "Screening Visual Defects in School Children." *The Optometric Weekly*, 1946, **37**, 1555–1557; 1599–1601.

National Society of College Teachers of Education, H. R. Douglass, et al. (eds.), *Twenty-seventh Yearbook: Study of College Instruction*. Chicago: University of Chicago Press, 1939.

National Society for the Study of Education, *Thirty-first Yearbook: Part II. Changes and Experiments in Liberal-Arts Education*. Bloomington, Ill.: Public School Publishing Company, 1932.

———, Warren W. Coxe (ch.), *Thirty-fifth Yearbook: Part I. The Grouping of Pupils*. Bloomington, Ill.: Public School Publishing Company, 1936.

———, Alvin C. Eurich; G. M. Whipple; et al., *Thirty-eighth Yearbook: Part II. General Education in the American College*. Bloomington, Ill.: Public School Publishing Company, 1939.

———, *Fortieth Yearbook: Art in American Life and Education*. Bloomington, Ill.: Public School Publishing Company, 1941.

———, N. B. Henry (ed.), *Forty-first Yearbook: Part II. The Psychology of Learning*. Bloomington, Ill.: Public School Publishing Company, 1942.

———, ———, *Forty-third Yearbook: Part I. Adolescence*. Chicago: University of Chicago Press, 1944.

———, *Early Childhood Education, Forty-sixth Yearbook: Part II*. Chicago: University of Chicago Press, 1947.

———, *Forty-seventh Yearbook: Part II. Reading in High School and College*. Chicago: University of Chicago Press, 1948.

Navy, Bureau of Naval Personnel, Test and Research Unit, *Constructing and Using Achievement Tests*. Washington, D.C.: The Bureau, 1944.

New Jersey Elementary Principals Association, "A Study of Pupil Failure in New Jersey." *Elementary School Journal*, 1936, **36**, 493–496.

Newland, T. E., "Early Identification." *The Phi Delta Kappan*, 1940, **23**, 33–44.

Newman, H. H.; F. N. Freeman; and K. J. Holzinger, *Twins; A Study of Heredity and Environment*. Chicago: University of Chicago Press, 1937.

Oak, L., "An Appraisal of the Betts Visual Sensation and Perception Tests as a Sorting Device for Use in Schools." *Journal of Educational Psychology*, 1939, **30**, 241–250.

Ogden, C. K., and I. A. Richards, *The Meaning of Meaning*. New York: Harcourt, Brace & Company, Inc., 1938.

Olson, W. C., "Reading as a Function of the Total Growth of the Child." *Supplementary Educational Monographs*, 1940, No. 51, 233–237.

———, "Self Selection as a Principle of Curriculum and Methods." *Educational Digest,* 1945, **10,** 17–19.

Paterson, D. G.; G. Schneidler; and E. G. Williamson, *Student Guidance Techniques.* New York: McGraw-Hill Book Company, Inc., 1938.

Peterson, K. M., "An Experiment in Selective Acceleration." *Educational Research Bulletin,* 1943, **22,** 211–216.

Pitkin, W. B., *The Art of Rapid Reading.* New York: McGraw-Hill Book Company, Inc., 1929.

Prescott, D. A., *"Emotion and the Educative Process."* Washington, D.C.: American Council on Education, 1938.

Pressey, S. L., "Acceleration: Disgrace or Challenge?" *Science,* 1946, **104,** 215–219.

———, "Age of College Graduation and Success in Adult Life." *Journal of Applied Psychology,* 1946, **30,** 226–233.

———, "Educational Acceleration." *Educational Research Bulletin,* 1946, **25,** 217–218.

———, "Efficiency Engineering in the Educational Emergency." *School and Society,* 1947, **65,** 425–428.

———, and F. P. Robinson, *Psychology and the New Education.* New York: Harper & Brothers, 1944.

Progressive Education Association, Commission on the Secondary School Curriculum, *Language in General Education.* New York: Appleton-Century-Crofts, Inc., 1940.

Rand, W.; M. E. Sweeny; and E. L. Vincent, *Growth and Development of the Young Child* (4th ed.). Claremont, Cal.: Saunders Press, 1946.

Reader, C. W., "Excess Schedules." *Journal of Higher Education,* 1946, **17,** No. 2, 99–101.

Reader, N., and H. B. English, "Personality Factors in Adolescent Female Friendships." *Journal of Consulting Psychology,* 1947, **11,** 212–220.

Reed, A. Y., *Guidance and Personnel Services in Education.* Ithaca, N. Y.: Cornell University Press, 1944.

Remmers, H. H., and N. L. Gage, *Educational Measurement and Evaluation.* New York: Harper & Brothers, 1943.

Renshaw, S., "The Visual Perception and Reproduction of Forms by Tachistoscopic Methods." *Journal of Psychology,* 1945, **20,** 217–232.

Richards, I. A., *How to Read a Page; A Course in Effective Reading with an Introduction to a Hundred Great Words.* New York: W. W. Norton & Company, Inc., 1942.

———, *Interpretation in Teaching.* New York: Harcourt, Brace & Company, Inc., 1938.

Rinsland, H. D., *Constructing Tests and Grading in Elementary and High School Subjects.* New York: Prentice-Hall, Inc., 1937.

Rolfe, J. F., "The Measurement of Teaching Ability: Study No. 2." *Journal of Experimental Education,* 1945, **14,** 52–74.

Rose, F. C., and S. M. Rostas, "The Effect of Illumination on Reading Rate and Comprehension of College Students." *Journal of Educational Psychology,* 1946, **37,** 279–292.

Rostker, L. E., "The Measurement of Teaching Ability: Study No. 1." *Journal of Experimental Education,* 1945, **14,** 6–51.

Rulon, P. J., *Sound Motion Picture in Science Teaching.* Cambridge, Mass.: Harvard University Press, 1933.

Ryans, D. G., "Appraising Teacher Personnel." *Journal of Experimental Education,* 1947, **16,** 1–30.

Sarbin, T. B., "A Contribution to the Study of Actuarial and Individual Methods of Prediction." *American Journal of Sociology,* 1943, **48,** 593–602.

Saunders, Carleton M., *Promotion or Failure for the Elementary School Pupil.* New York: Teachers College, Columbia University, 1941.

Saxson, J. A., and J. W. Harbeson, *The New American College.* New York: Harper & Brothers, 1946.

Scheidemann, N. V., "Education of Exceptional Children." *Phi Delta Kappan,* 1940, **23,** No. 2.

———, *The Psychology of Exceptional Children,* Vols. I and II. Boston: Houghton Mifflin Company, 1931, 1937.

Schonell, Fred J., *The Psychology and Teaching of Reading.* Edinburgh: Oliver & Boyd, Ltd., 1945.

Schwebel, M., "Guidance for the Withdrawing College Student." *Occupations,* 1947, **25,** 381–382.

Seagoe, M. V., "Permanence of Interest in Teaching." *Journal of Educational Research,* 1945, **38,** 678–684.

———, "Prognostic Tests and Teaching Success." *Journal of Educational Research,* 1945, **38,** 685–690.

Segel, David, "Intellectual Abilities in the Adolescence Period; Their Growth and Development." Washington, D.C.: Office of Education, Bulletin No. 6, 1948.

Seidenfeld, M. A., "Illiteracy, Fact and Fiction." *School and Society,* 1943, **58,** 330–332.

———, "Limited Service Personnel in the Army; A Program of Training for Service." *Psychological Bulletin,* 1942, **39,** 437–438 (abs.).

———, "Psychological Practices in the Army." *Psychological League Journal,* 1942, **5,** 6–8.

———, "Training Linguistically and Mentally Limited Personnel in the Military Service." *Journal of Educational Psychology,* 1943, **34,** 26–34.

———, and P. A. Witty, "Psychometrics in Special Training Units of the Army." *Education,* 1943, **63,** 534–537.

——— and ———, "A Reading Program for the Linguistically Handicapped and Mentally Limited Personnel in the Military Service." *Educational Method,* 1943, **22,** 354–358.

Sells, S. B., "Measurement and Prediction of Special Abilities." *Review of Educational Research,* 1944, **14,** 38–54.

Sharpe, R. T., "Student Personnel Work: 1. Student Financial Aid," in W. S. Monroe (ed.), *Encyclopedia of Educational Research.* New York: The Macmillan Company, 1941.

Shay, C. T., "The Progressive-Part vs. the Whole Method

of Learning Motor Skills." *Research Quarterly,* 1934, **5,** 62–67.

Shirley, M.; B. Baum; and S. Polsky, "Outgrowing Childhood's Problems; A Follow-up Study of Child Guidance Patients." *Smith College Studies in Social Work,* 1940, **11,** 31–60.

Shouse, R. D., "Acceleration of High School Students by Groups." *Educational Administration and Supervision,* 1937, **23,** 51–62.

Simpson, H. G., "A Diagnostic List of Spelling Words for College Freshmen." *Journal of Educational Psychology,* 1945, **36,** 366–373.

Simpson, R. H., "A Study of Those Who Influence and Those Who Are Influenced in Discussion." *Teachers College, Columbia University, Contributions to Education,* 1938, No. 748.

Skinner, C. E., *Educational Psychology.* New York: Prentice-Hall, Inc., 1945.

Slaymaker, R. R., "Admission Test Procedure." *Journal of Engineering Education,* 1947, **37,** 402–413.

Smith, M. R., "Student Aid." *Teachers College, Columbia University, Contributions to Education,* 1937, No. 704.

Speer, G. S., "Negative Reactions to College Counseling." *Occupations,* 1945, **24,** 99–100.

Starch, D., *Educational Psychology* (rev. ed.). New York: The Macmillan Company, 1927.

Stevenson, G. S., and G. Smith, *Child Guidance Clinics.* New York: The Commonwealth Fund, 1934.

Strang, R., and F. C. Rose, *Problems in the Improvement of Reading in High School and College.* Lancaster, Pa.: Science Press Printing Company, 1938.

Strayer, G. D., *Age and Grade Census of Schools and Colleges,* Bureau of Education, Bulletin No. 5. Washington, D.C.: Government Printing Office, 1911.

Stright, I. L., "Some Factors Affecting College Success." *Journal of Educational Psychology,* 1947, **38,** 232–240.

Strong, E. K., "Personnel-Psychologists at Stanford University." *Psychological Bulletin,* 1944, **41,** 474–489.

Stroud, J. S., "Experiments on Learning in School Situations." *Psychological Bulletin,* 1940, **37,** 777–807.

———, *Psychology in Education.* New York: Longmans, Green & Company, Inc., 1946.

———, and M. Henderson, "Rate of Reading and Learning by Reading." *Journal of Educational Psychology,* 1943, **34,** 193–205.

"Study of Pupil Failure in New Jersey." *Elementary School Journal,* 1936, **36,** 493–496.

Super, D. E., "Reflections on the Vocational Guidance of Veterans." *Occupations,* 1946, **25,** 40–42.

Sutsman, R., *Mental Measurement of Pre-School Children, with a Guide for the Administration of the Merrill-Palmer Scale of Mental Tests.* Yonkers, N. Y.: World Book Company, 1931.

Swenson, E. J., *Retroactive Inhibition; A Review of the Literature.* Minneapolis, Minn.: University of Minnesota Press, 1941.

Swineford, F., *A Study in Factor Analysis; The Nature of the General Verbal and Apatial Bi-factors.* Chicago: University of Chicago Press.

Symonds, P. M., "Research on the Interviewing Process." *Journal of Educational Psychology,* 1939, **30,** 346–353.

Thorndike, E. L., "Mental Discipline in High School Studies." *Journal of Educational Psychology,* 1924, **15,** 1–22, 83–98.

———, "Promotion, Retardation and Elimination." *Psychological Clinic,* 1910, **3,** 232–240, 255–265.

———, "Reading as Reasoning; A Study of Mistakes in Paragraph Reading." *Journal of Educational Psychology,* 1917, **8,** 329.

———, et al., "An Experimental Study of Rewards." *Teachers College, Columbia University, Contribution to Education,* 1933, No. 58.

Thorndike, Robert L., *Research Problems and Techniques in Personnel Psychology.* New York: John Wiley & Sons, 1949.

Thurstone, L. L., *Primary Mental Abilities.* Chicago: University of Chicago Press, 1938.

Tinker, M. A., "Eye Movements in Reading." *Journal of Educational Research,* 1936, **30,** 241–277.

———, "The New 'Standards' for School Lighting." *School and Society,* 1939, **49,** 95–96.

———, "The Study of Eye Movements in Reading." *Psychological Bulletin,* 1946, **43,** 93–120.

Toops, H. A., "The Evolution of the Ohio State University Psychological Test." *Ohio College Association Bulletin,* 1945, **113,** 2287–2312.

———, "A Proposal for a 'Standard Million' in Compiling Norms," in *Proceedings of the Conference of State Testing Leaders,* 1939, 29–38.

———, "The Selection of Graduate Assistance." *Personnel Journal,* 1928, **6,** 457–472.

———, "Tests for Vocational Guidance of Children Thirteen to Sixteen." *Teachers College, Columbia University, Contributions to Education,* 1933, No. 136.

———, *Trade Tests in Education.* New York: Teachers College, Columbia University, 1921.

Traxler, A. E., "The Improvement of Study." *School Review,* 1945, **53,** 286–293.

———, "The Improvement of Study Habits and Skills." *Educational Records Bulletin,* 1944, No. 41.

Troyer, M. E., *An Attempt to Broaden the Basis of Prognosis of the Criterion of Success of College Freshmen.* Columbus: Ohio State University Library, 1935 (unpublished).

———, "The Selection of Students for the Profession of Teaching." *Journal of Educational Research,* 1940, **33,** 581–593.

———, and C. R. Pace, *Evaluation in Teacher Education.* Washington, D.C.: American Council on Education, 1944.

Tyler, H. T., and G. C. Kimber, *Manual for the Tyler-Kimber Study Skills Test.* Palo Alto, Cal.: Stanford University Press, 1937.

US Office of Education, *Economy of Time in Education*, Bulletin No. 39. Washington, D.C.: Government Printing Office, 1913.

Vernon, M. D., *The Experimental Study of Reading*. New York: The Macmillan Company, 1931.

Volkmor, H., and I. Noble, "Retardation As Indicated by One Hundred City School Reports." *Psychological Clinic*, 1914, **8**, 73–81.

Waters, R. H., and A. L. Ellis, "The Relative Efficacy of Free and Guided Learning When Equated in Terms of Time." *Journal of Comparative Psychology*, 1931, **12**, 263–278.

Weber, C. D., "Old and New College Board Scores and Grades of College Freshmen." *Journal of the American Association of Collegiate Registrars*, 1944, **20**, 70–72.

Weber, J.; W. G. Brink; and A. R. Gilliland, "Success in the Graduate School." *Journal of Higher Education*, 1942, **13**, 19–34.

Weill, Blanche C., *Through Children's Eyes*. New York: Island Workshop Co-op, Inc., 1940.

Whitty, P., "An Analysis of the Personality Traits of the Effective Teacher." *Journal of Educational Research*, 1947, **40**, 662–671.

Wickenden, W. E., *Comparative Study of Engineering Education in the United States and in Europe*. Society for Promotion of Engineering, 1929.

Williamson, E. G., and E. S. Bordin, "Prediction of Success in the College of Science, Literature and the Arts." *Studies in Predicting Scholastic Achievement*, University of Minnesota, 1942, **1**, 1–32.

———, and J. G. Darley, *Student Personnel Work*. New York: McGraw-Hill Book Company, Inc., 1937.

Witty, P. A., "Procedures Followed in the Preparation of Instructional Materials for Illiterate Men in the Army." *American Psychologist*, 1946, **1**, 262.

———, and D. Kopel, "Sinistral and Mixed Manual-Ocular Behavior in Reading Disability." *Journal of Educational Psychology*, 1936, **27**, 119–134.

Worcester, D. A., "Adapting to Individual Differences." *Journal of Higher Education*, 1945, **16**, 152–154.

Wrightstone, J. W., *Appraisal of Experimental High School Practices*. New York: Teachers College, Columbia University, 1936.

———, *Appraisal of Newer Elementary School Practices*. New York: Teachers College, Columbia University, 1938.

E. CLINICAL PSYCHOLOGY

Abel, T. M., "A Study of a Group of Subnormal Girls Successfully Adjusted in Industry and the Community." *American Journal of Mental Deficiency*, 1940, **45**, 66–72.

———, and E. F. Kinder, *The Subnormal Adolescent Girl*. New York: Columbia University Press, 1942.

Adler, A., *The Neurotic Constitution*. New York: Dodd, Mead & Company, 1917.

Alexander, F.; T. M. French; et al., *Psychoanalytic Therapy; Principles and Application*. New York: The Ronald Press Company, 1946.

Allen, F. H., *Psychotherapy with Children*. New York: W. W. Norton & Company, Inc., 1942.

American Prison Association, *Handbook on Classification in Correctional Institutions*. New York: The Association, 1947.

Ames, A., "Aniseikonia: A Factor in the Function of Vision." *American Journal of Ophthalmology*, 1935, **18**, 1014–1019.

Ames, A., Jr., "Binocular Vision as Affected by Relations between Uniocular Stimulus-Patterns in Commonplace Environments." *American Journal of Psychology*, 1946, **59**, 333–357.

Anderson, M. L., "The Education and Training of Older Dull Pupils." *Proceedings and Addresses, American Association for the Study of the Feeble-minded*, 1931, **36**, 100–109.

Appel, K. E., "Psychiatric Therapy," in J. McV. Hunt (ed.), *Personality and the Behavior Disorders*. New York: The Ronald Press Company, 1944.

Ascham, J. B. (ed), *Principles of Child Care in Institutions; A Handbook for Staff Study and Discussion*. Columbus, Ohio: The Ohio Committee on Children's Institutions, State Department of Public Welfare, 1941.

Association of Casualty and Surety Companies, *The Physically Impaired; A Guidebook to Their Employment*. New York: The Association, 1945.

Attorney General's Office, *Survey of Release Procedures of Prisons*. Washington, D.C.: Government Printing Office, 1940, Vol. V.

Babcock, H., "An Experiment in the Measurement of Mental Deterioration." *Archives of Psychology*, 1930, No. 117.

———, "Personality and Efficiency of Mental Functioning." *American Journal of Orthopsychiatry*, 1940, **10**, 527–532.

Beck, S. J., "The Rorschach Test and Personality Diagnosis: I. The Feeble-minded." *American Journal of Psychiatry*, 1930, **10**, 19–52.

Bender, J., and V. A. Fields, *Principles and Practices of Speech Correction*. New York: Pitman Publishing Corporation, 1938.

Benedict, R., "Anthropology and the Abnormal." *Journal of General Psychology*, 1934, **10**, 59–82.

Bentley, M., and E. V. Cowdrey (eds.), *The Problem of Mental Disorder*. New York: McGraw-Hill Book Company, 1935.

Benton, A. L., "The Minnesota Multiphasic Personality Inventory in Clinical Practice." *Journal of Nervous and Mental Diseases*, 1945, **102**, 416–420.

———, "A Visual Retention Test for Clinical Use." *Archives of Neurology and Psychiatry*, 1945, **54**, 212–216.

———, and I. L. Howell, "The Use of Psychological Tests in the Evaluation of Intellectual Function Following Head Injury." *Psychosomatic Medicine,* 1941, **3,** 138–151.

———, and K. A. Probst, "A Comparison of Psychiatric Ratings with Minnesota Multiphasic Personality Inventory Scores." *Journal of Abnormal and Social Psychology,* 1946, **41,** 75–78.

Benussi, V., "Die Atmungasymptome der Lüge." *Archiv für die Gesamte Psychologie,* 1914, **31,** 44–273.

Berg, I. A., and V. Fox, "Factors in Homicides Committed by 200 Males." *Journal of Social Psychology,* 1947, **26,** 109–119.

Berry, M. F., and J. Eisenson, *The Defective in Speech.* New York: Appleton-Century-Crofts, Inc., 1942.

Berry, R. J. A., and R. G. Gordon, *The Mental Defective.* New York: McGraw-Hill Book Company, Inc., 1931.

Bijin, S. W. (ed.), *The Psychological Program in the AAF Convalescent Hospitals.* Army Air Forces, Aviation Psychology Program Research Reports, No. 15. Washington, D.C.

Bills, A. G., "The Relation of Stuttering to Mental Fatigue." *Journal of Experimental Psychology,* 1934, **17,** 574–584.

Bjerre, A., *The Psychology of Murder.* New York and London: Longmans, Green & Company, Inc., 1927.

Blanchard, P., "The Importance of First Interviews in Therapeutic Work with Children." *Smith College Studies in Social Work,* 1940, **10,** 267–284.

———, "Interpretation of Psychological Tests in Clinical Work with Children." *Mental Hygiene,* 1941, **25,** 58–75.

———, "Interpreting Psychological Data to Parents." *Journal of Consulting Psychology,* 1940, **4,** 120–123.

———, "Psychoanalytic Contributions to the Problem of Reading Disabilities." *Psychoanalytic Study of the Child,* 1947, **2,** 163–187.

———, "Reading Disabilities in Relation to Difficulties of Personality and Emotional Development." *Mental Hygiene,* 1936, **20,** 384–413.

Blauch, L. E., *Vocational Rehabilitation of the Physically Disabled.* Washington, D. C.: Government Printing Office, 1938.

Blumel, C. S., *Mental Aspects of Stammering.* Baltimore, Md.: The Williams & Wilkins Company, 1930.

———, *Stammering and Allied Disorders.* New York: The Macmillan Company, 1935.

———, *Stammering and Cognate Defects of Speech:* Vol. I. *The Psychology of Stammering;* Vol. II. *Contemporaneous Systems of Treating Stammering; Their Possibilities and Limitations.*" New York: G. E. Stechert & Company, 1913.

Bowler, A. C., and R. S. Bloodgood, *Part I. Institutional Treatment of Delinquent Boys.* Washington, D. C.: US Children's Bureau, No. 228, 1935.

Branhan, V. C., and Kutash, S. B., *Encyclopedia of Criminology.* New York: Philosophical Library, Inc., 1949.

Brenman, M., and M. M. Gill, *Hypnotherapy.* New York: Josiah Macy, Jr. Foundation, 1944, Review Series, Vol. 2, No. 3.

Brooks, Lee M., and E. C. Brooks, *Adventuring in Adoption.* Chapel Hill, N. C.: University of North Carolina Press, 1939.

Brotemarkle, R. A., "Clinical Psychology, 1896–1946." *Journal of Consulting Psychology,* 1947, **11,** 1–4.

Brown, A. W., and A. A. Hartman, "A Survey of the Intelligence of Illinois Prisoners." *Journal of Criminal Law and Criminology,* 1938, **28,** 707–719.

Bruch, H., and D. J. McCune, "Mental Development of Congenitally Hypothyroid Children." *American Journal of Diseases of Children,* 1944, **67,** 205–224.

Burr, E. T., "The Vocational Adjustment of Mental Defectives." *Psychological Clinic,* 1931, **20,** 55–64.

Burt, C., *The Young Delinquent.* New York: Appleton-Century-Crofts, Inc., 1925.

Burtt, H. E., "The Association Reaction as a Measurement of Attitude." *Journal of Social Psychology,* 1941, **14,** 363–368.

———, "The Inspiration Expiration Ratio during Truth and Falsehood." *Journal of Experimental Psychology,* 1921, **4,** 1–23.

———, "Motor Concomitants of the Association Reaction." *Journal of Experimental Psychology,* 1936, **19,** 51–63.

Buswell, G. T., "Remedial Reading at the College and Adult Levels." *Supplementary Educational Monographs,* 1939, No. 50.

Cannon, W. B., *Bodily Changes in Pain, Hunger, Fear and Rage.* New York: Appleton-Century-Crofts, Inc., 1936.

Caplin, H., *Report of Civil Works Project 177 for the Conservation of Hearing of School Children.* New York City: Works Project Administration, 1935.

Cattell, R. B., *Description and Measurement in Personality.* Yonkers, N. Y.: World Book Company, 1946.

Channing, A., *Employment of Mentally Deficient Boys and Girls.* Washington, D. C.: US Children's Bureau, 1932, No. 210.

Clark, E. P., "The Federal Survey of Occupational Conditions among the Deaf and Hard of Hearing in New York City." *American Annals of the Deaf,* 1934, **79,** 392.

Clark, M. A., *Directory of Psychiatric Clinics in the United States.* New York: National Committee for Mental Hygiene, Division on Community Clinics and Division on Rehabilitation, 1946.

Clemmer, D., *The Prison Community.* Boston: Christopher Publishing House, 1940.

Clothier, F., "The Problem of Frequent Replacement of the Young Dependent Child." *Mental Hygiene,* 1937, **21,** 549–558.

———, "The Psychology of the Adopted Child." *Mental Hygiene,* 1943, **27,** 222–230.

Cobb, S., *Borderlands of Psychiatry*. Cambridge, Mass.: Harvard University Press, 1943.

Cook, R., "The Rh Gene as a Cause of Mental Deficiency." *Journal of Heredity*, 1944, **35**, 133–134.

Corcoran, M. E., "Observations and Suggestions for Improving the Care of Mental Defectives." *American Journal of Mental Deficiency*, 1947, **51**, 599–605.

Corsini, R., "Functions of the Prison Psychologist." *Journal of Consulting Psychology*, 1945, **9**, 101–104.

Craig, E., "Important Considerations in the Procedure of Adoption," in *Little Wanderers Advocate*. Boston: New England Home for Little Wanderers, 1937.

Crosland, H. R., *The Psychological Methods of Word-Association and Reaction Time as Tests of Deception*, Eugene, Ore.: University of Oregon Publications, Psychological Series, No. 1, 1929.

Darrow, C. W., "Electrical and Circulatory Responses to Brief Sensory and Ideational Stimuli." *Journal of Experimental Psychology*, 1929, **12**, 267–300.

Davies, S. P., *Social Control of the Mentally Deficient*. New York: Thomas Crowell Company, 1930.

Davis, H., et al., *Hearing Aids*. Cambridge, Mass.: Harvard University Press, 1947.

Davis, J. E., *Rehabilitation; Its Principles and Practice* (rev. ed.). New York: A. S. Barnes & Co., Inc., 1946.

Dearborn, W. F., and I. H. Anderson, "Aniseikonia as Related to Disability in Reading." *Journal of Experimental Psychology*, 1938, **23**, 559–577.

DeGruchy, C., *Creative Old Age*. San Francisco: Old Age Counselling Center, 1946.

DeHaven, H., "Mechanics of Injury under Force Conditions." *Mechanical Engineering*, 1944, **66**, No. 4, 264–268.

Despert, J. L., and H. O. Pierce, "The Relation of Emotional Adjustment to Intellectual Function." *Genetic Psychology Monographs*, 1946, **34**, 3–56.

Dietz, J. W., "An Experiment with Vocationally Handicapped Workers." *Personnel Journal*, 1932, **10**, 365–370.

DiMichael, S. G., and D. H. Dabelstein, "The Psychologist in Vocational Rehabilitation." *Journal of Consulting Psychology*, 1946, **10**, 237–245.

Doll, E. A., "Annotated Bibliography on the Vineland Social Maturity Scale." *Journal of Consulting Psychology*, 1940, **4**, 123–132.

———, "Education and Training of the Feeble-minded." *Proceedings and Addresses of the American Association for Studies of the Feeble-minded*, 1932, **37**, 99–116.

———, "Principles and Methods of Individualized Penal Treatment." *Journal of Criminal Law and Criminology*, 1936, **26**, 695–702.

———, "Psychometric Pitfalls in Clinical Practice." *Journal of Consulting Psychology*, 1947, **11**, 12–20.

Duke-Elder, W. S., *Textbook of Ophthalmology:* Vol. 1. *The Development, Form and Function of the Visual Apparatus*. London: Henry Kimpton, 1932.

Dunbar, H. F., *Emotions and Bodily Changes* (2nd ed.). New York: Columbia University Press, 1938.

———, *Psychosomatic Diagnosis*. New York: Paul R. Hoeber, Inc., 1943.

Dunlap, Knight, *The Elements of Scientific Psychology*. St. Louis: C. V. Mosby Company, 1922.

Durrell, D. D., and H. E. Sullivan, *Durrell-Sullivan Reading Capacity and Achievement Tests*. Yonkers, N. Y.: World Book Company, 1937.

Ellis, W. J., "Practical Results of the Classification Program," in *Proceedings of the Seventieth Annual Congress of the American Prison Association*. New York: The Association, 1940.

Emsley, H. H., *Visual Optics*. London: Hatton Press, Ltd., 1936.

Estes, S. G., "Concerning the Therapeutic Relationships in the Dynamics of Cure." *Journal of Consulting Psychology*, 1948, **12**, 76–81.

Ewing, A. W. G., *Aphasia in Children*. London: Oxford University Press, 1930.

Farnsworth, Dean, "Industrial Tests for Color Vision." *Transactions American Academy of Ophthalmology and Otolaryngology*, November–December, 1948, pp. 156–157.

Fenton, N., et al., *The Delinquent Boy and the Correctional School*. Claremont, Calif.: Colleges Guidance Center, 1935.

Fernald, G. M., *Remedial Techniques in Basic School Subjects*. New York: McGraw-Hill Book Company, Inc., 1943.

Fisher, G. E., "The Prevention of Conduction Deafness." *Journal of the Medical Association*, State of Alabama, 1946, **16**, 196–198.

Fletcher, H., "New Methods and Apparatus for Testing the Acuity of Hearing." St. Louis: Laryngoscope Press, 1925.

———, *Speech and Hearing*. New York: D. Van Nostrand Company, Inc., 1929.

Fletcher, J. M., *The Problem of Stuttering; A Diagnosis and a Plan of Treatment*. New York: Longmans, Green & Company, Inc., 1928.

Frampton, M. E., and H. G. Rowell, *Education of Handicapped*. Yonkers: World Book Company, Vol. I. *History*, 1938; Vol. II. *Problems*, 1940.

Frank, L. K., "Projective Methods for the Study of Personality." *Journal of Psychology*, 1939, **8**, 389–413.

Freeman, G. L.; G. E. Manson; E. T. Katzoff; and J. H. Pathman, "The Stress Interview." *Journal of Abnormal and Social Psychology*, 1942, **37**, 427–447.

Freud, S., *The Basic Writings of Sigmund Freud*. New York: Modern Library, Inc., 1938.

———, *A General Introduction to Psychoanalysis*. New York: Liveright Publishing Corporation, 1935.

Froeschels, E., *Speech Therapy*. Magnolia, Mass.: The Expression Company, 1933.

———, and A. Jellinek, *Practice of Voice and Speech*

Therapy. Magnolia, Mass.: The Expression Company, 1941.

Gardner, G. E., "Future Therapeutic Role of the Clinical Psychologist." *American Journal of Orthopsychiatry*, 1942, **12**, 383–388.

———, and N. Goldman, "Childhood and Adolescent Adjustment of Naval Successes and Failures." *American Journal of Orthopsychiatry*, 1945, **15**, 584–596.

Gates, A. I., *The Psychology of Reading and Spelling with Special Reference to Disability*. New York: Teachers College, Columbia University, 1922.

Gesell, A., and C. S. Amatruda, *Developmental Diagnosis; Normal and Abnormal Child Development*. New York: Harper & Brothers, 1941.

Giardini, G. I., "How Is Psychology Used in Law and Criminology? Part II. Psychology in Criminology," Chap. 9 in J. Gray, et al., *Psychology in Use*. New York: American Book Company, 1941.

Gifford, M. F., *Correcting Nervous Speech Disorders*. New York: Prentice-Hall, Inc., 1939.

Glueck, B. (ed.), *Current Therapies of Personality Disorders*. New York: Grune & Stratton, Inc., 1936.

Glueck, S., and E. Glueck, *Juvenile Delinquents Grown Up*. New York: The Commonwealth Fund, 1940.

——— and ———, *One Thousand Juvenile Delinquents*. Cambridge, Mass.: Harvard University Press, 1934.

Goddard, H. H., *Feeble-Mindedness; Its Causes and Consequences*. New York: The Macmillan Company, 1914.

Goldberg, S., "Contributions of the Clinical Psychologist to Army Training Programs." *Bulletin of Military Clinical Psychologists*, 1946, **1**, 53–65.

Goldfarb, W., "The Effects of Early Institutional Care on Adolescent Personality." *Journal of Experimental Education*, 1943, **12**, 106–129.

———, "Psychological Privation in Infancy and Subsequent Adjustment." *American Journal of Orthopsychiatry*, 1945, **15**, 247–255.

Goldstein, K., *Aftereffects of Brain Injuries in War: Their Evaluation and Treatment; The Application of Psychologic Methods in the Clinic*. New York: Grune & Stratton, Inc., 1942.

Goldstein, M. A., *Problems of the Deaf*. St. Louis: Laryngoscope Press, 1933.

Gorsuch, J. H., "A Scale of Seriousness of Crimes." *Journal of Criminal Law and Criminology*, 1938, **29**, 245–252.

Grinker, R. R., and J. P. Spiegel, *War Neuroses*. Philadelphia, Pa.: The Blakiston Company, 1945.

Guiler, W. S., and J. H. Coleman, *Getting the Meaning*. Philadelphia, Pa.: J. B. Lippincott Company, 1945.

Guthrie, E. R., *The Psychology of Human Conflict*. New York: Harper & Brothers, 1938.

Gutzman, H., *Sprachheilkunde*. Berlin: Fishers medizinische Buchhandlung, H. Kornfeld, 1924.

Hadley, L. S., "Scholastic Adjustment Problems of the Returning Veterans." *Educational Research Bulletin*, 1945, **24**, 87–92.

Hartman, A. A., "Recidivism and Intelligence." *Journal of Criminal Law and Criminology*, 1940, **31**, 417–426.

Hayes, S. P., *Vocational Aptitude Tests for the Blind*. Watertown, Mass.: Perkins Institution, 1946.

Head, H., *Aphasia and Kindred Disorders of Speech*. New York: The Macmillan Company, 1926.

Healy, W., and A. F. Bronner, *Treatment and What Happened Afterward*. Boston: Judge Baker Guidance Center, 1939.

Hebb, D. O., "Spontaneous Neurosis in Chimpanzees; Theoretical Relations with Clinical and Experimental Phenomena." *Psychosomatic Medicine*, 1947, **9**, 3–19.

Heilman, M. W., and E. S. Montgomery, "Heat Diseases; A Clinical and Laboratory Study." *Journal of Industrial Hygiene and Toxicology*. 1936, **18**, 651–667.

Hochhauser, E., "Industrial Aspects of the Rehabilitation Program of the Tuberculous." *Transactions of the National Tuberculosis Association*, 1938.

———, "Sheltered Workshop; Its Place in Rehabilitation of Tuberculous." *Hospitals*, 1942, **16**, 84–88.

Holsopple, J. Q., "The Social Adjustment of Delinquents Who Are Unable to Inhibit Old Automatic Perceptual Responses." *Journal of Social Psychology*, 1932, **3**, 91–96.

Hooton, E. A., *Crime and the Man*. Cambridge, Mass.: Harvard University Press, 1939.

Hopkirk, Howard W., *Institutions Serving Children*. New York: Russell Sage Foundation, 1944.

Hudson, Holland, "Placing the Discharged Patient." *Public Health Nursing*, 1943, **35**, 435–438.

———, and M. Fish, *Occupational Therapy in the Treatment of the Tuberculous Patient*. New York: National Tuberculosis Association, 1944.

———, and R. Van Gelder, *Counseling the Handicapped; A Manual on Aptitudes: Their Discovery and Interpretation*. New York: National Tuberculosis Association, 1940.

Huesman, M., "Psychological Services to the Mentally Handicapped in Chicago Public Schools." *American Journal of Mental Deficiency*, 1947, **51**, 632–636.

Hunt, J., *Stammering and Stuttering; Their Nature and Treatment*. London: Longmans, Green & Company, 1860.

Hunt, J. McV. (ed.), *Personality and the Behavior Disorders*. New York: The Ronald Press Company, 1944.

Hunt, W. A., and I. Stevenson, "Psychological Testing in Military Clinical Psychology: II. Personality Testing." *Psychological Review*, 1946, **53**, 107–115.

Inbau, F. E., *Lie Detection and Criminal Interrogation*. Baltimore, Md.: The Williams & Wilkins Company, 1942.

International Labor Office, *The Training and Employment of Disabled Persons; A Preliminary Report*. Washington, D. C.: The Office, 1945.

Judd, D. B., "Facts of Color-Blindness." *Journal of the Optical Society of America*, 1943, **33**, 294–307.

Judson, L. S., and A. T. Weaver, *Voice Science*. New York: Appleton-Century-Crofts, Inc., 1942.

Jung, C. G., "Diagnostische Assoziationsstudien." *Beitrage zur experimentellen Psychopathologie*. Leipzig: Barth, Bd. **1**, 1906.

Kanner, Leo, *Child Psychiatry*. Springfield, Ill.: Charles C. Thomas, Publisher, 1935.

Karpinos, B. D., "The Physically Handicapped." *Public Health Reports*, 1943, **58**, 1573–1592.

Klapman, J. W., *Group Psychotherapy; Theory and Practice*. New York: Grune & Stratton, Inc., 1936.

Kraines, S. H., *The Therapy of the Neuroses and Psychoses; A Socio-psycho-biologic Analysis and Resynthesis* (2nd ed.). Philadelphia, Pa.: Lea & Febiger, 1943.

Kratz, J. A., "Security for the Handicapped." *Annals of the American Academy*, 1939, **202**, 100–104.

Krech, D., "A Note on Fission." *American Psychologist*, 1946, **1**, 402–404.

Lancaster, J. E., "The Orthoptic Treatment of Alternating Squint." *American Journal of Ophthalmology*, 1942, **25**, 866–870.

Lancaster, W. B., and J. E., "Orthoptics." *Journal of the American Medical Association*. 1947, **133**, 1211–1215.

Landis, C., and W. A. Hunt, "Adrenalin and Emotion." *Psychological Review*, 1932, **39**, 467–485.

Larson, J. A., "The Cardio-pneumo-Psychogram in Deception." *Journal of Experimental Psychology*, 1923, **6**, 402–454.

Layman, J. W., "A Clinical Study of Children under Foster Care." *Journal of Psychology*, 1940, **10**, 107–120.

———, "IQ Changes in Older-Age Children Placed for Foster-Home Care." *Journal of Genetic Psychology*, 1942, **60**, 61–70.

Lee, E.; M. A. Cartwright; et al., "The Social and Vocational Rehabilitation of the Tuberculous." *Occupations*, 1937, **15**, 581–631.

Levy, D. M., "Psychic Trauma of Operations in Children." *American Journal of Diseases of Children*, 1945, **69**, 7–25.

———, "Use of Play Technic as Experimental Procedure." *American Journal of Orthopsychiatry*, 1933, **3**, 266–277.

Lewis, N. D. C., *Outlines for Psychiatric Examinations*. Utica, N. Y.: State Hospitals Press, 1943.

Licklider, J. C. R., "Effects of Amplitude Distortion upon the Intelligibility of Speech." *Journal of the Acoustical Society of America*, 1946, **18**, 429–434 (abs.).

Lindner, R. M., and R. V. Seliger (eds.), *Handbook of Correctional Psychology*. New York: The Philosophical Library, Inc., 1947.

Lindsley, D. B., "Electroencephalography," Chap. 33 in J. McV. Hunt (ed.), *Personality and the Behavior Disorders*. New York: The Ronald Press Company, 1944.

Lipkin, S., "The Client Evaluates Non-directive Psychotherapy." *Journal of Consulting Psychology*, 1948, **12**, 137–146.

Loughlin, W. C., and H. O. Mosenthal, "Study of the Personalities of Children with Diabetes." *American Journal of Diseases of Children*, 1944, **68**, 137–146.

Loutitt, C. M., "Clinical Psychology," Chap. 15 in J. P. Guilford (ed.), *Fields of Psychology*. New York: D. Van Nostrand Company, Inc., 1940.

———, *Clinical Psychology of Children's Behavior Problems* (2nd ed.). New York: Harper & Brothers, 1947.

———, and C. G. Browne, "The Use of Psychometric Instruments in Psychological Clinics." *Journal of Consulting Psychology*, 1947, **11**, 49–54.

Lowman, C. L., and M. A. Seidenfeld, "A Preliminary Report on the Psycho-social Effects of Poliomyelitis." *Journal of Consulting Psychology*, 1947, **11**, 30–37.

Luria, A. R., "Die Methode der Abbildenden Motorik bei Kommunikation der Systeme und ihre Anwendung auf die Affektpsychologie." *Psychologische Forschung*, 1929, **12**, 127–179.

Marston, W. M., "Systolic Blood Pressure Symptoms of Deception." *Journal of Experimental Psychology*, 1917, **2**, 117–163.

Masserman, J. H., *Behavior and Neurosis; An Experimental Psycho-analytic Approach to Psycho-biologic Principles*. Chicago: University of Chicago Press, 1943.

Mateer, Florence, *The Unstable Child*. New York: Appleton-Century-Crofts, Inc., 1924.

Mathews, W. M., *Research on Problems of the Deaf*. New York City: Works Projects Administration, 1936.

———, "Scope of Clinical Psychology in Child Guidance." *American Journal of Orthopsychiatry*, 1942, **12**, 388–393.

McAllister, A. H., *Clinical Studies in Speech Therapy*. London: University of London Press, 1937.

McCormick, H. W., et al., *Reports*, the Committee for the Study of the Care and Education of Physically Handicapped Children in the Public Schools of the City of New York. New York: The Board of Education of the City of New York, 1941–1942:

Physically Handicapped Children in New York City (general report)

Acoustically Handicapped Children (E. P. Fowler, chm.)

Cardiac Classes and the Care of Cardiac Children (A. C. DeGraff, chm.)

Children with Speech Defects (W. O. Klingman, chm.)

Children with Tuberculosis (I. W. Woodruff, chm.)

The Education of Children in Hospitals and Convalescent Homes (M. C. Pease, chm.)

Epileptic Children (G. H. Hyslop, chm.)

Open Air Classes and the Care of Below-Par Children (I. O. Woodruff, chm.)

Orthopedically Handicapped Children (B. P. Farrell, chm.)

Psychological Considerations in the Education of the Handicapped (I. S. Wile, chm.)

Visually Handicapped Children (C. Borens, chm.)

McKinley, J. C., and S. R. Hathaway, "The Identification and Measurement of the Psychoneuroses in Medical Practice." *Journal of the American Medical Association,* 1943, **122,** 161–167.

——— and ———, "Multiphasic Personality Schedule (Minnesota)." *Journal of Psychology,* 1940, **10,** 249–268.

McKinney, F., "Case History Norms of Unselected Students and Students with Emotional Problems." *Journal of Consulting Psychology,* 1947, **11,** 258–269.

———, *Psychology of Personal Adjustment.* New York: John Wiley & Sons, Inc., 1941.

McMurry, R. N., "Efficiency Work-Satisfaction and Neurotic Tendency; A Study of Bank Employees." *Personnel Journal,* 1932, 201–210.

Meltzer, H., "Approach of the Clinical Psychologist to Management Relationships." *Journal of Consulting Psychology,* 1944, **8,** 165–174.

Merrill, M. A., *Problems of Child Delinquency.* Boston: Houghton Mifflin Company, 1947.

Metfessel, M., "Concepts of Motivation, Restraint and Traits in the Study of Crime." *Journal of General Psychology,* 1940, **23,** 415–430.

———, and C. Lovell, "Recent Literature on Individual Correlates of Crime." *Psychological Bulletin,* 1942, **39,** 133–164.

Mickelson, P., "The Feeble-minded Parent—A Study of 90 Family Cases; An Attempt to Isolate Those Factors Associated with Their Successful or Unsuccessful Parenthood." *American Journal of Mental Deficiency,* 1947, **51,** 644–653.

Miner, J. B., "The Psycho-medical Correction of the Drug Habit." *Journal of Abnormal and Social Psychology,* 1933, **28,** 119–122.

Missildine, W. H., "The Emotional Background of Thirty Children with Reading Disabilities with Emphasis on Its Coercive Elements." *Nervous Child,* 1946, **5,** 263–272.

Munroe, R. L., "The Use of Projective Methods in Group Testing." *Journal of Consulting Psychology,* 1948, **12,** 8–15.

Murphy, G., *Personality.* New York: Harper & Brothers, 1947.

Murray, H. A., *Thematic Apperception Test.* Cambridge, Mass.: Harvard University Press, 1943.

National Society for the Study of Education, G. M. Whipple (ed.), *Intelligence; Its Nature and Nurture: Part I. Comparative and Critical Exposition. Part II. Original Studies and Experiments.* Bloomington, Ill.: Public School Publishing Company, 1940.

Nelson, A. G., "Types of Vocational Counseling Problems; A Study of Two Hundred Disabled Male Veterans." *Journal of Clinical Psychology,* 1947, **3,** 252–256.

Orton, S. T., *Reading, Writing and Speech Problems in Children; A Presentation of Certain Types of Disorders in the Development of the Language Faculty.* New York: W. W. Norton & Company, Inc., 1937.

Osborne Association, Inc., *Handbook of American Institutions for Delinquent Juveniles.* New York: The Association, Vol. I. *West North Central States,* 1938; Vol. II. *Kentucky and Tennessee,* 1940; Vol. III. *Pacific Coast States,* 1940; Vol. IV. *Virginia-North Carolina,* 1943.

Pennsylvania Department of Public Instruction, *Meeting the Needs of the Acoustically Handicapped.* Harrisburg, Pa.: The Department, Bulletin No. 421, 1944.

———, *Meeting the Needs of the Mentally Retarded.* Harrisburg: The Department, Bulletin No. 420, 1939.

Penrose, L. S., *Mental Defect.* New York: Rinehart & Company, Inc., 1934.

Pintner, R., "The Survey of Schools for the Deaf; Psychological Survey." *American Annals of the Deaf,* 1927, **72,** 377–414.

Plant, J., *Personality and the Cultural Pattern.* New York: The Commonwealth Fund, 1937.

Porter, R. M., "Mentally Deficient Boys Go Camping." *American Journal of Mental Deficiency,* 1947, **51,** 748–754.

Porteus, S. D., *Studies in Mental Deviations.* Vineland, N. J.: The Training School, 1922.

———; M. H. Sicha; and C. J. Herrick, *The Practice of Clinical Psychology.* New York: American Book Company, 1941.

Potter, R. K., et al., *Visible Speech.* New York: D. Van Nostrand Company, Inc., 1947.

Psychoanalytic Institute, Chicago, "Psychogenic Factors in Bronchial Asthma." *Psychosomatic Medical Monographs,* 1941, No. 4.

Rapaport, D., et al., *Diagnostic Psychological Testing.* Chicago: Year Book Publishers, Inc., 1945.

———, ———, *Manual of Diagnostic Psychological Testing: I. Diagnostic Testing of Intelligence and Concept Formation.* New York: Josiah Macy, Jr. Foundation, 1944.

———, ———, *Manual of Diagnostic Psychological Testing: II. Diagnostic Testing of Personality and Ideational Content.* New York: Josiah Macy, Jr. Foundation, 1946.

Raskin, N. J., "The Development of Non-directive Therapy." *Journal of Consulting Psychology,* 1948, **12,** 92–110.

Reckless, W. C., *Criminal Behavior.* New York: McGraw-Hill Book Company, Inc., 1940.

———, and M. Smith, *Juvenile Delinquency.* New York: McGraw-Hill Book Company, Inc., 1932.

Reid, G., "The Etiology and Nature of Functional Articulatory Defects in Elementary School Children." *Journal of Speech Disorders,* 1947, **12,** 143–150.

Richards, T. W., *Modern Clinical Psychology*. New York: McGraw-Hill Book Company, Inc., 1946.

Ridenour, N., "Notes on the Status of Clinical Psychology." *Journal of Consulting Psychology*, 1938, **2**, 137–142.

Roe, A.; B. S. Burks; and B. Mittelman, *Adult Adjustment of Foster Children of Alcoholic and Psychotic Parentage and the Influence of the Foster Home*. New Haven: Memoirs of the Section on Alcohol Studies, Yale University, 1945.

Rogers, C. R., *The Clinical Treatment of the Problem Child*. Boston: Houghton Mifflin Company, 1939.

———, *Counseling and Psychotherapy: 1. Newer Concepts in Practice*. Boston: Houghton Mifflin Company, 1942.

———, "How Is Psychology Used in Clinical Practice?" Chap. 3 in J. Gray, et al., *Psychology in Use*. New York: American Book Company, 1941.

———, and J. L. Wallen, *Counseling with Returned Servicemen*. New York: McGraw-Hill Book Company, Inc., 1946.

Roland, M. C., "The Psychological Examination as a Beginning in Therapy." *Journal of Consulting Psychology*, 1945, **9**, 171–177.

Rorschach, H., *Psychodiagnostics; A Diagnostic Test Based on Perception*. New York: Grune & Stratton, Inc., 1942.

Rosenzweig, S., et al., "An Elementary Syllabus of Psychological Tests." *Journal of Psychology*, 1944, **18**, 9–40.

Ruch, T. L., "Effects of Repeated Interviews on the Respondent's Answers." *Journal of Consulting Psychology*, 1941, **5**, 179–182.

Saul, L. J., "Psychological Effects of Emotional Tension," Chap. 8 in J. McV. Hunt (ed.), *Personality and the Behavior Disorders*. New York: The Ronald Press Company, 1944.

Schmidt, B. G., "Changes in Behavior of Originally Feeble-minded Children." *Journal of Exceptional Children*, 1947, **14**, 67–72.

Schroeder, P. L., *Annual Report of the Criminologist including the Institute for Juvenile Research (July 1, 1939, to June 30, 1940)*. Springfield, Ill.: Department of Public Welfare, 1941.

Seidenfeld, M. A., "Clinical Psychology in Army Hospitals." *Psychological Bulletin*, 1944, **41**, 510–514.

———, "Psychological Elements in Work Interference from Physical Disability." *Journal of Consulting Psychology*, 1947, **11**, 326–333.

———, "The Psychological Reorientation of the Tuberculous." *Journal of Psychology*, 1940, **10**, 397–405.

———, "The Psychologist in the Tuberculosis Hospital." *Journal of Consulting Psychology*, 1944, **8**, 312–318.

———, "Some Psychometric Observations on the Tuberculous Patients in a National Institution: 1. Otis Self-Administering Test of Mental Ability." *Journal of General Psychology*, 1939, **21**, 447–455.

Selig, M. K., "Temporary Use of an Institution for Children in Foster Care." *American Journal of Orthopsychiatry*, 1942, **12**, 466–474.

Seliger, R. V., et al. (eds.), *Contemporary Criminal Hygiene*. Baltimore, Md.: Oakridge Press, 1946.

Sellin, T., "Culture Conflict and Crime." *American Journal of Sociology*. 1938, **44**, 97–103.

———, "Research Memo on Crime in the Depression." *Social Science Research Council Bulletin*, 1937, No. 27.

Selling, L. S., *Diagnostic Criminology*. Ann Arbor, Mich.: Edwards Bros., Inc., 1935.

———, "Investigation Methods in Clinical Criminology." *Journal of Criminal Psychopathology*, 1940, **2**, 80–88.

———, "Notes on the Psychopathic Clinic of the Recorder's Court." *American Journal of Orthopsychiatry*, 1937, **7**, 429–433.

Seth, G., and D. J. Guthrie, *Speech in Childhood; Its Development and Disorders*. London: Oxford University Press, 1935.

Shafer, R., "On the Objective and Subjective Aspects of Diagnostic Testing." *Journal of Consulting Psychology*, 1948, **12**, 4–7.

Shaffer, L. F., *The Psychology of Adjustment*. Boston: Houghton Mifflin Company, 1936.

Shalloo, J. P. (ed.), *Crime in the United States*. Philadelphia: American Academy of Political and Social Science, 1941.

Shaw, C. R., et al., *Brothers in Crime*. Chicago: University of Chicago Press, 1938.

Sheard, C., "Ophthalmic Optics with Applications to Physiological Optics," in O. Glasser (ed.), *Medical Physics*, Chicago: Year Book Publishers, Inc., 1944.

Sheldon, W. H., "Constitutional Factors in Personality," Chap. 17 in J. McV. Hunt (ed.), *Personality and the Behavior Disorders*. New York: The Ronald Press Company, 1944.

Sherif, M., and H. Cantril, *The Psychology of Ego-Involvements; Social Attitudes and Identifications*. New York: John Wiley & Sons, Inc., 1947.

Sherman, M., "Emotional Disturbances and Reading Disability." *Supplementary Educational Monographs*, 1939, No. 49.

Shipley, W. C., "A Self-Administering Scale for Measuring Intellectual Impairment and Deterioration." *Journal of Psychology*, 1940, **9**, 371–377.

———; F. E. Gray; and N. Newbert, "The Personal Inventory; Its Derivation and Validation." *Journal of Clinical Psychology*, 1946, **2**, 318–322.

Skeels, H. M., and H. B. Dye, "A Study of the Effects of Differential Stimulation on Mentally Retarded Children." *Proceedings of the American Association on Mental Deficiency*, 1939, **44**, 114–136.

Skodak, M., "Children in Foster Homes; A Study of Mental Development." *University of Iowa Studies in Child Welfare*, 1939, **16**, No. 1.

———, and H. M. Skeels, "A Follow-up Study of Children in Adoptive Homes." *Journal of Genetic Psychology*, 1945, **66**, 21–58.

Snyder, W. V., *Case Book of Nondirective Counseling.* Boston: Houghton Mifflin Company, 1942.

———, "The Present Status of Psychotherapeutic Counseling." *Psychological Bulletin,* 1947, **44,** 297–386.

Springer, N., and S. Roslow, "A Further Study of the Psychoneurotic Responses of Deaf and Hearing Children." *Journal of Educational Psychology,* 1938, **29,** 590–596.

Stagner, M. A., and E. K. Donahue, *Prediction and Prevention of Reading Difficulties.* New York: Oxford University Press, 1937.

Stagner, R., *Psychology of Personality.* New York: McGraw-Hill Book Company, Inc., 1937.

Stinchfield, S. M., *Speech Disorders: 1. A Psychological Study of the Various Defects of Speech.* New York: Harcourt, Brace & Company, Inc., 1933.

———, and E. H. Young, *Children with Delayed or Defective Speech; Motor-Kinesthetic Factors in Their Training.* Palo Alto, Cal.: Stanford University Press, 1938.

Sutherland, E. H., *Principles of Criminology.* New York: J. P. Lippincott Company, 1939.

Symmes, E. F., "An Infant Testing Service as an Integral Part of a Child Guidance Clinic." *American Journal of Orthopsychiatry,* 1933, **3,** 409–430.

Symonds, P. M., *Diagnosing Personality and Conduct.* Watkins Glen, N. Y.: Century House, 1931.

———, *The Dynamics of Human Adjustment.* New York: Appleton-Century-Crofts, Inc., 1946.

Theis, S. Van S., *How Foster Children Turn Out.* New York: State Charities Aid Association, 1924.

Thonssen, L., and E. Fatherson, *Bibliography of Speech Education.* New York: The H. W. Wilson Company, 1939.

Thorne, F. C., "A Critique of Non-directive Methods of Psychotherapy." *Journal of Abnormal and Social Psychology,* 1944, **39,** 459–470.

Tinker, M. A., "Diagnostic and Remedial Reading: 1." *The Elementary School Journal,* 1932, **33,** 293–307.

Town, C. H., *Familial Feeble-Mindedness: A Study of One Hundred and Forty-one Families.* Buffalo, N. Y.: Foster & Stewart Publishing Corporation, 1939.

Travis, L. E., "The Influence of the Group upon the Stutterer's Speed in Free Association." *Journal of Abnormal and Social Psychology,* 1928, **23,** 45–51.

———, *Speech Pathology; A Dynamic Neurological Treatment of Normal Speech and Speech Deviations.* New York: Appleton-Century-Crofts, Inc., 1931.

Traxler, A. E., *Techniques of Guidance.* New York: Harper & Brothers, 1945.

———, *Traxler Reading Tests.* Bloomington, Ill.: Public School Publishing Co., 1942.

Tredgold, A. F., *Textbook of Mental Deficiency* (6th ed.). New York: William Wood & Company, 1937.

Triggs, F. O., *Remedial Reading.* Minneapolis, Minn.: University of Minnesota Press, 1943.

Trovillo, P. V., "A History of Lie Detection." *Journal of Criminal Law and Criminology,* 1939, **29,** 848–881.

Tulchin, S. H., "The Clinical Training of Psychologists and Allied Specialists." *Journal of Consulting Psychology,* 1939, **3,** 105–112.

———, *Intelligence and Crime.* Chicago: University of Chicago Press, 1939.

US Office of Education, "The Hard of Hearing Child," *School Health Studies,* 1927, No. 13.

Valentiner, H. L., "The Effect of Vitamin B Complex on the Fatigability of Mentally Deficient Children." *American Journal of Psychology,* 1943, **56,** 381–394.

Van Riper, C., *Speech Correction; Principles and Methods.* New York: Prentice-Hall, Inc., 1939.

Wallin, J. E. W., *The Education of Handicapped Children.* New York: Houghton Mifflin Company, 1924.

War Department, *Group Psychotherapy.* War Department Technical Bulletin, Medical Bulletin No. 103, 1944.

Watson, R. I., *Reading in the Clinical Method of Psychology.* New York: Harper & Brothers, 1949.

Wechsler, D., *The Measurement of Adult Intelligence.* Baltimore: The Williams & Wilkins Company, 1944.

Weisenburg, T., and K. McBride, *Aphasia; A Clinical and Psychological Study.* New York: The Commonwealth Fund, 1935.

Weiss, E., and O. S. English, *Psychosomatic Medicine.* Philadelphia, Pa.: W. B. Saunders Company, 1943.

Welch, L., "The Theoretical Basis of Psychotherapy; Psychoanalysis, Behaviorism and Gestalt Psychology." *American Journal of Orthopsychiatry,* 1945, **15,** 256–266.

Wellman, F. L.: *The Art of Cross-Examination* (4th ed.). New York: The Macmillan Company, 1936.

Wells, F. L., *Mental Tests in Clinical Practice.* Yonkers, N. Y.: World Book Company, 1927.

———, and J. Ruesch, *Mental Examiner's Handbook.* New York: The Psychological Corporation, 1945.

West, R.; L. Kennedy; and A. Carr, *The Rehabilitation of Speech; A Textbook of Diagnostic and Corrective Procedures.* New York: Harper & Brothers, 1937.

Westburgh, E. M., *Introduction to Clinical Psychology.* Philadelphia, Pa.: The Blakiston Company, 1937.

Westover, F. L., "Controlled Eye Movements versus Practice Exercises in Reading; A Comparison of Methods of Improving Reading and Comprehension of College Freshmen." *Teachers College, Columbia University, Contribution to Education,* 1946, No. 917.

Wilder, J., "The Psychodrama as Compared with Other Methods of Psychotherapy." *Sociometry,* 1942, **5,** 185–190.

Williamson, E. G., and E. S. Bordin, "A Statistical Evaluation of Clinical Counseling." *Educational and Psychological Measurement,* 1941, **1,** 117–132.

Witmer, H. L., "A Comparison of Treatment Results in

Various Types of Child Guidance Clinics." *American Journal of Orthopsychiatry,* 1935, **5,** 351–360.

———, *Psychiatric Clinics for Children.* New York: The Commonwealth Fund, 1940.

——— (ed.), *Psychiatric Interviews with Children.* New York: The Commonwealth Fund, 1946.

Wyatt, F., "The Self-Experience of the Psychotherapist." *Journal of Consulting Psychology,* 1948, **12,** 82–87.

Wylie, J., *The Disorders of Speech.* Edinburgh: Oliver & Boyd, Ltd., 1894.

Yost, Edna, and L. E. M. Gilbreth, *Normal Lives for the Disabled.* New York: The Macmillan Company, 1944.

Young, Kimball, *Personality and Problems of Adjustment.* New York: Appleton-Century-Crofts, Inc., 1945.

F. PROFESSIONAL RELATIONS
(WITHIN THE PROFESSION AND WITH OTHER PROFESSIONS)

Achilles, Paul S., "The Consulting Services of the Psychological Corporation." *Journal of Consulting Psychology,* 1946, **10,** 120–126.

———, "Report of the Activities of the Psychological Corporation." *Journal of Applied Psychology,* 1941, **25,** 213–226.

Allen, E. C., and J. P. Guilford, "Minor Studies from the Psychological Laboratory of the University of Nebraska: X. Factors Determining the Affective Values of Color Combinations." *American Journal of Psychology,* 1936, **48,** 643–648.

Allen, P. E., and P. Smith, *The Value of Vocational Tests as Aids to Choices of Employment.* Birmingham, England: Treasurer's Department, Council House, 1932.

American Association of Medical Colleges, "Report of the Committee on Testing." *Journal of the Association,* 1936, **11,** 273–286.

American College Personnel Association, "Charter of the American College Personnel Association." *Report of the Fifteenth Annual Meeting,* 1938, ed., E. A. Andrews.

———, E. G. Williamson (ed.), "The Minnesota Program of Coordinating Decentralized Student Personnel Services." *Report of the Sixteenth Annual Meeting of the American College Personnel Association,* 1939, pp. 101–116.

American Council on Education, *Report,* quoted in W. W. Blaesser, et al., *Student Personnel Work in the Postwar College.* Washington, D. C.: Commission on Liberal Education, The Council, 1945.

American Psychological Association, "Report by the Committee on Clinical Psychology," Laurence F. Shaffer (chm.). *American Psychologist,* 1946, **1,** 520–522.

———, "Report of the Policy and Planning Board on the Certification of Professional Psychologists." *American Psychologist,* 1946, **1,** 41–42.

Anderson, V. V., *Psychiatry in Industry.* New York: Harper & Brothers, 1929.

Ansbacher, H. L., "German Military Psychology." *Psychological Bulletin,* 1941, **38,** 370–392.

Arthur, G. A., *Tutoring as Therapy.* New York: The Commonwealth Fund, 1946.

Barker, M.. "The Duties of a School Psychologist." *Journal of Consulting Psychology,* 1938, **2,** 189–183.

Barker, R. G.; B. A. Wright; and M. Gonick, "Adjustment to Physical Handicap and Illness: A Survey of the Social Psychology of Physique and Disability. *Social Science Research Council Bulletin,* 1946, No. 55.

Baruch, D. W., "More Teacher Training Wanted." *Journal of Consulting Psychology,* 1944, **8,** 360–366.

———, "Therapeutic Procedures as Part of the Educative Process." *Journal of Consulting Psychology,* 1940, **4,** 165–172.

Berdie, R. F., "The Field of Applied Psychology." *Journal of Applied Psychology,* 1940, **24,** 553–575.

Bergen, G. L., and J. F. Murphy, *Ten Thousand Clients of the Adjustment Service.* New York: American Association for Adult Educational Adjustment, Service Report No. 10, 1935.

———, G. Schneidler; and L. Sherman, *Use of Tests in the Adjustment Service.* New York: American Association for Adult Educational Adjustment, Service Report No. 4, 1935.

Bixler, R. H.; E. S. Bordin; and H. L. Deabler, "Supervised Training in a College Counseling Bureau." *Journal of Consulting Psychology,* 1946, **10,** 233–236.

Boucher, C. S., *The Chicago College Plan.* Chicago: University of Chicago Press, 1935.

British Psychological Society, *Shelter and Evacuation Problems.* London: British Psychological Society, 1941.

Britt, S. H., "Blood-Grouping Tests and the Law; The Problem of 'Cultural Lag'." *Minnesota Law Review,* 1937, **21,** 671–702.

———, "Blood-Grouping Tests and More Cultural Lag." *Minnesota Law Review,* 1938, **22,** 836–842.

———, "Pedestrian Conformity to a Traffic Regulation." *Journal of Abnormal and Social Psychology,* 1940, **35,** 114–119.

———, "Pending Developments in the Legal Status of Psychologists." *Journal of Consulting Psychology,* 1941, **5,** 52–55.

———, "Questions on Law in Connection with Military Government." *Journal of Legal and Political Sociology,* 1943, **2,** 136–152.

———, "The Rules of Evidence; An Empirical Study in Psychology and Law." *Cornell Law Quarterly.* 1940, **25,** 556–580.

———, "The Significance of the Last Will and Testament." *Journal of Social Psychology,* 1937, **8,** 347–353.

———, "The Social Psychology of Law: I. The Course

and Its Advantages; II. A Sample Lecture; Premeditation and Intent." *Illinois Law Review,* 1940, **34,** 802–811, 919–928.

———, and I. N. Mensh, "The Identification of One's Own Handwriting." *Journal of Criminal Law and Criminology,* 1943, **34,** 50–60.

Bromberg, Walter, *The Mind of Man.* New York: Harper & Brothers, 1937.

Brown, A. W., et al., "Report of the Committee of the Clinical Section of the American Psychological Association: I. The Definition of Clinical Psychology and Standards of Training for Clinical Psychologists. II. Guide to Psychological Clinics in the United States," *Psychological Clinic,* 1935, **23,** 1–140.

Brown, C. M., and M. F. Puhr, *The Minnesota House Design and House Furnishing Test.* Minneapolis, Minn.: University of Minnesota Press, 1936.

Brumbaugh, A. J., "Student Personnel Work: 1. Educational Counseling," in W. S. Monroe (ed.), *The Encyclopedia of Educational Research.* New York: The Macmillan Company, 1941.

Bryan, A. I., "Can There Be a Science of Bibliotherapy?" *Library Journal,* 1939, **64,** 773–776.

———, "Educating Civilians for War and Peace through Library Film Forums." *Journal of Consulting Psychology,* 1943, **1,** 280–288.

———,"Legibility of Library of Congress Cards and Their Reproductions." *College and Research Libraries,* 1945, **6,** 447–464.

———, "Library Field Forum on National Defense." *Library Journal,* 1941, **66,** 241–243.

———, "Personality Adjustment through Reading." *Library Journal,* 1939, **64,** 573–576.

———, "The Personality of the School Librarian." *Wilson Library Bulletin,* 1940, **15,** 129–133.

———, "Psychological Service in the Library Field." *Journal of Consulting Psychology,* 1942, **6,** 73–77.

———, "The Psychology of the Reader." *Library Journal,* 1939, **64,** 7–12.

———, "The Reader as a Person." *Library Journal,* 1940, **65,** 137–141.

———, "The Testing Program in the Library School." *Library Quarterly,* 1939, **9,** 32–62.

———, and E. G. Boring, "Women in American Psychology; Factors Affecting Their Professional Careers." *American Psychologist,* 1946, **2,** 3–20.

———, and W. H. Wilke, "A Technique for Rating Public Speeches." *Journal of Consulting Psychology,* 1941, **5,** 80–90.

Burgess, E. W., and L. S. Cottrell, *Predicting Success or Failure in Marriage.* New York: Prentice-Hall, Inc., 1939.

Buros, O. K. (ed.), *The Third Mental Measurements Yearbook.* New Brunswick, N. J.: Rutgers University Press, 1949.

Burris-Meyer, H., "Sound in the Theatre." *Journal of the Acoustical Society of America,* 1940, **11,** 346–351 (abs.).

Burtt, H. E., *Legal Psychology.* New York: Prentice-Hall, Inc., 1931.

Cairns, H., *Law and the Social Sciences.* New York: Harcourt, Brace & Company, Inc., 1935.

Cantril, H., and G. W. Allport, *The Psychology of Radio.* New York: Harper & Brothers, 1935.

Carr-Saunders, A. M., and P. A. Wilson, *The Professions.* London: Oxford University Press, 1933.

Cason, E. B., "Some Suggestions on the Interaction between the School Psychologist and the Classroom Teacher." *Journal of Consulting Psychology,* 1945, **9,** 132–137.

Cattell, J. McK., "Retrospect; Psychology as a Profession." *Journal of Consulting Psychology,* 1937, **1,** 1–3.

Chandler, A. R., *Beauty and Human Nature.* New York: Appleton-Century-Crofts, Inc., 1934.

———, and E. N. Barnhart, *A Bibliography of Psychological and Experimental Aesthetics: 1864–1937.* Berkeley, Cal.: University of California Press, 1938.

Chant, S. N. F., and C. R. Myers, "An Approach to the Measurement of Mental Health." *American Journal of Orthopsychiatry,* 1936, **6,** 134–140.

Charters, W. W., and D. Waples, *The Commonwealth Teacher-Training Study.* Chicago: University of Chicago Press, 1929.

Clevett, M. A., "The Experiment in Teaching Methods of Golf." *Research Quarterly,* 1931, **2,** 104–112.

Cornell, E. L., "Can Librarians Help Unusual Readers?" *American Library Association Bulletin,* 1941, **35,** 160–165.

———, "Certification of Specialized Groups of Psychologists (School Psychologists)." *Journal of Consulting Psychology,* 1941, **5,** 62–65.

———, *The Work of the School Psychologist.* Albany, N. Y.: University of the State of New York, 1942.

Covner, B. J., "Principles of Psychological Consulting with Client Organizations." *Journal of Consulting Psychology,* 1947, **11,** 227–244.

Cowan, M., "Pitch and Intensity Characteristics of Stage Speech." *Archives of Speech,* 1936, **1,** Supplement, 1–92.

Cowley, W. H., *The Personnel Bibliographical Index.* Columbus, Ohio: Ohio State University Press, 1932.

Cox, G. B., and H. H. Anderson, "A Study of Teachers' Responses to Problem Situations in School, as Reported by Teachers and Students." *American Journal of Orthopsychiatry,* 1944, **14,** 528–544.

Coxe, W. W., "Professional Problems of Applied Psychology." *Journal of Consulting Psychology,* 1940, **4,** 96–103.

Cozens, F. W., "A Comparative Study of Two Methods of Teaching Class Work in Track and Field Events." *Research Quarterly,* 1931, **2,** 75–79.

Culbert, J., and H. R. Smith, *Counseling Young Workers.* New York: Vocational Service for Juniors, 1939.

Cureton, T. K., "Elementary Principles and Techniques of Cinematographic Analysis as Aids in Athletic Research." *Research Quarterly,* 1939, **10.**

———, *Scientific Principles Underlying Instruction in Health, Physical Education and Recreation.* Berkeley, Cal.: University of California, Syllabus No. 3930, 1939.

———, et al., "Endurance of Young Men; Analysis of Endurance Exercises and Methods of Evaluating Motor Fitness." *Monographs of the Society for Research in Child Development,* 1945, **10,** No. 1.

———, ———, "Physical Fitness." *Research Quarterly,* 1941, **12,** 301–493.

Curry, R., *The Mechanism of the Human Voice.* London: Longmans, Green & Company, Inc., 1940.

Cutts, N. E., "Development of a Certification Procedure for School Psychologists." *Journal of Consulting Psychology,* 1943, **7,** 45–49.

Dabelstein, D. H., "Counseling in the Rehabilitation Service." *Journal of Clinical Psychology,* 1946, **2,** 116–122.

Danton, J. P., *Education for Librarianship; Criticisms, Dilemmas and Proposals.* New York: School of Library Service, Columbia University, 1946.

Darley, J. G., and R. Berdie, "The Fields of Applied Psychology." *Journal of Consulting Psychology,* 1940, **4,** 41–52.

——— and ———, *The Fields of Personnel Work.* Chicago: Science Research Associates, 1946.

———, and D. Wolfle, "Can We Meet the Formidable Demand for Psychological Services?" *The American Psychologist,* 1946, **1,** 179–180.

Davis, J. E., "The Place of Physical Exercise in the Modern Treatment of the Mentally Ill." *American Physical Education Review,* 1929, **34,** 538–539.

Davison, W. C., *The Compleat Pediatrician* (4th ed.). Durham, N. C.: Duke University Press, 1943.

Day, G., "Observations on the Psychology of the Tuberculous." *The Lancet,* 1946, **251,** 703–706.

Dearborn, G. V. N., "The Nerve-Mechanism of Voluntary Movement." *American Physical Education Review,* 1912, **17,** 368–379.

Despert, J. L., "Emotional Factors in Some Young Children's Colds." *Medical Clinics of North America,* 1944, **28,** 603–614.

———, "Urinary Control and Enuresis." *Psychosomatic Medicine,* 1944, **6,** 294–307.

———; H. Kopp; and M. Krugman, "Psychosomatic Study of Fifty Stuttering Children; A Round Table." *American Journal of Orthopsychiatry,* 1946, **16,** 100–113, 114–119, 127–133.

Deutsch, F., and R. Nadell, "Psychosomatic Aspects of Dermatology with Special Consideration of Allergic Phenomena." *Nervous Child,* 1946, **5,** 339–364.

Dill, D. B., "The Economy of Muscular Exercise." *Psychological Review,* 1936, **16,** 263–292.

Dimock, H. S., *Rediscovering the Adolescent.* New York: Association Press, 1937.

———, and C. E. Hendry, *Camping and Character.* New York: Association Press, 1929.

Doll, E. A., "Psychological Personnel." *American Journal of Mental Deficiency,* 1940, **45,** 167–169.

———, "Some Things We Know in Clinical Psychology." *Journal of Applied Psychology,* 1940, **24,** 20–26.

Dryer, S., *Radio in Wartime.* New York: Greenberg, Publisher, 1942.

Dudycha, G. J., "A Bibliography on Careers in Psychology, II," *American Psychologist,* 1948, **3,** 543–546.

Dunlap, K., *Civilized Life.* Baltimore: The Williams & Wilkins Company, 1934.

Dusenburg, D., and F. H. Knower, "Experimental Studies of the Symbolism of Action and Voice." *Quarterly Journal of Speech,* 1938, **24,** 424–435; 1939, **25,** 67–75.

Egan, J. P., *Articulation Testing Methods:* II. *Psycho-Acoustic-Laboratory.* Cambridge, Mass.: Harvard University, OSRD Report, No. 3802, 1944.

Ehrensberger, R., "An Experimental Study of the Relative Effectiveness of Certain Forms of Emphasis in Public Speaking." *Speech Monographs,* 1945, **12,** 94–111.

Eisenson, J., *The Psychology of Speech.* New York: Appleton-Century-Crofts, Inc., 1938.

Elonen, A. S.; M. A. Onken; and D. Slight, "Training the Clinical Psychologist; Externships in Medical School Clinics." *American Psychologist,* 1946, **1,** 50–54.

English, H. B., "Fundamentals and Fundamentalism in the Preparation of Applied Psychologists." *Journal of Consulting Psychology,* 1941, **5,** 1–13.

Erickson, C. E., and G. E. Smith, *Organization and Administration of Guidance Services.* New York: McGraw-Hill Book Company, Inc., 1947.

Esslinger, A. A., "Physical Education," in W. S. Monroe (ed.), *Encyclopedia of Educational Research.* New York: The Macmillan Company, 1941, pp. 801–814.

Evenden, E. S., *Summary and Interpretation; National Survey of the Education of Teachers. Vol. VI.* Washington, D. C.: Government Printing Office, 1935.

Fairbanks, G., "Recent Experimental Investigations of Vocal Pitch in Speech." *Journal of the Acoustical Society of America,* 1940, **11,** 457–466.

———, and W. Pronovost, "An Experimental Study of the Pitch Characteristics of the Voice during the Expression of Emotions." *Speech Monographs,* 1939, **6,** 87–104.

Fairbanks, H., and L. W. Hoaglin, "An Experimental Study of the Durational Characteristics of the Voice during the Expression of Emotion." *Speech Monographs,* 1941, **8,** 75–90.

Faulkner, R., "Educational Research and Effective Art Teaching." *Journal of Experimental Education,* 1940, **9,** 9–22.

———, "An Experimental Investigation Designed to Develop Tests to Measure Art Understanding and Appreciation, 1937." *Summaries of Ph.D. Theses, University of Minnesota,* 1939, **1.**

Fenton, N., *Mental Hygiene in School Practice.* Palo Alto, Cal.: Stanford University Press, 1943.

———, *State Child Guidance Service in California Communities.* Sacramento: The Supervisor of Documents, 1938.

Ferree, C. E., and G. Rand, "A New Method of Rating Visual Acuity." *Journal of General Psychology,* 1941, **25,** 143–176.

Finch, F. H., and M. E. Odoroff, "Employment Trends in Applied Psychology." *Journal of Consulting Psychology,* 1939, **3,** 118–122.

Five College Plans, with an introduction by J. J. Coss. New York: Columbia University Press, 1931.

Flanagan, J. C., "A Study of the Factors Determining Family Size in a Selected Professional Group." *Genetic Psychology Monographs,* 1942, **25,** 3–99.

Flesch, Rudolf, *The Art of Plain Talk.* New York: Harper & Brothers, 1946.

———, *Marks of Readable Style; A Study in Adult Education.* New York: Teachers College, Columbia University, 1943.

———, "A New Readability Yardstick." *Journal of Applied Psychology,* 1948, **32,** 221–233.

Frank, J., *Law and the Modern Mind.* New York: Coward-McCann, Inc., 1930.

Frank, L. K., "Society as the Patient." *American Journal of Sociology,* 1936, **42,** 335–344.

Fryer, D. H., "Applied and Professional Attitudes." *Journal of Consulting Psychology,* 1939, **3,** 1–10.

Gardner, G. E.: W. M. Mathews; R. A. Young; and S. H. Tulchin, "Present Day Trends in the Functions of the Clinical Psychologist; Round Table Discussion." *American Journal of Orthopsychiatry,* 1942, **12,** 383–404.

Garrett, A. M., *Counseling Methods for Personnel Workers.* New York: Family Welfare Association, 1945.

Gaudet, F. J., "Individual Differences in the Sentencing Tendencies of Judges." *Archives of Psychology,* 1938, No. 230.

Gesell, A., "Physical Education in the Pre-School Years." *American Physical Education Review,* 1929, **34,** 528–529.

Gilkinson, H., "A Questionnaire Study of the Causes of Social Fears among College Speech Students." *Speech Monographs,* 1943, **10,** 74–83.

———, and F. H. Knower, *Psychological Studies of Individual Differences among Students of Speech.* Minneapolis, Minn.: privately published, 1939.

Gillespie, R. D., *Psychological Effects of War on Citizen and Soldier.* New York: W. W. Norton & Company, Inc., 1942.

Ginsburg, S. W., "Some Notes on the Private Practice of Psychiatry." *Bulletin of the Menninger Clinic,* 1946, **6,** 188–196.

Goldstein, K., and M. Scheerer, "Abstract and Concrete Behavior; An Experimental Study with Special Tests." *Psychological Monographs,* 1941, **53,** No. 2.

Green, L., *Judge and Jury.* Kansas City, Mo.: Vernon Law Book Company, 1930.

Griffin, F. W., *The Scientific Basis of Physical Education.* London: Oxford University Press, 1937.

Griffith, C. R., *Psychology and Athletics.* New York: Charles Scribner's Sons, 1928.

———, *Psychology of Coaching.* New York: Charles Scribner's Sons, 1926.

Hartmann, G. W., and T. Newcomb (eds.), *Industrial Conflict; A Psychological Interpretation.* New York: The Dryden Press, Inc., 1939.

Hayakawa, S. I., *Language in Action.* New York: Harcourt, Brace & Company, Inc., 1941.

Hayworth, D.; A. Rondileau; R. A. Miller, et al., *A Research into the Teaching of Public Speaking.* Detroit, Mich.: National Association of Teachers of Speech, 1939.

Heaton, K. L., *Character Building through Recreation.* Chicago: University of Chicago Press, 1929.

Henrikson, E. H., "An Analysis of the Characteristics of Some Good and Poor Speakers." *Speech Monographs,* 1944, **11,** 120–124.

Herbert, C. W., *Personnel Administration in Public Libraries.* Chicago: American Library Association, 1939.

Heron, W. T., and E. W. Ziebarth, "A Preliminary Experimental Comparison of Radio and Classroom Lectures." *Speech Monographs,* 1946, **13,** 54–57.

Hildreth, G. H., *Psychological Service for School Problems.* Yonkers, N. Y.: World Book Company, 1930.

———, "Psychology as a Career." *Journal of Consulting Psychology,* 1937, **1,** 25–28.

Hirsch, N. D. M., "An Experimental Study of the East Kentucky Mountaineers." *Genetic Psychology Monographs,* 1928, **3,** 183–244.

Hollingworth, H. L., *The Psychology of the Audience.* New York: American Book Company, 1935.

Horrocks, John E., "State Certification Requirements for School Psychologists." *American Psychologist,* 1946, **1,** 399–401.

Hunt, H. F., "On Goals, Methods and Tactics in Psychotherapy." *Journal of Consulting Psychology,* 1948, **12,** 68–75.

Jackson, C. O., "An Experimental Study of the Effect of Fear on Muscular Coordination." *Research Quarterly,* 1933, **4,** 71–80.

Joeckel, C. B. (ed.), *Current Issues in Library Administration.* Chicago: University of Chicago Press, 1939.

Johnson, A. S., *The Public Library—a People's University.* New York: American Association for Adult Education, 1938.

Johnson, W., et al., "A Study of the Onset and Development of Stuttering." *Journal of Speech Disorders,* 1942, **7,** 251–257.

Jones, E. K., *Hospital Libraries.* Chicago: American Library Association, 1939.

Jones, H. E., "Experimental Studies of College Teaching;

The Effect of Examination on Permanence of Learning." *Archives of Psychology*, 1923, No. 68.

Kanner, L., *Child Psychiatry*. Springfield, Ill.: C. C. Thomas, Publisher, 1935.

Katz, B., "Children in Distress." *Education*, 1946, **66**, 573–577.

Keller, F. J., and M. S. Viteles, *Vocational Guidance throughout the World*. New York: W. W. Norton & Company, Inc., 1937.

Kelly, G. A., "A State-supported Child Guidance Clinic for Kansas School Children." *Kansas Teacher*, 1936, **43**, 6–7.

Kennedy, C. W., "The Effect of Athletic Competition on Character Building." *American Physical Education Review*, 1926, **31**, 988–991.

Kinney. M. M., "Bibliotherapy and the Librarian." *Special Libraries*, 1946, **37**, 175–180.

Kinter, M., *The Measurement of Artistic Abilities*. New York: The Psychological Corporation, 1933.

Kitson, H. D., "Creating Vocational Interests." *Occupations*, 1942, **20**, 567–571.

Kotschnig, W. M., *Unemployment in the Learned Professions; An International Study of Occupational and Educational Planning*. London: Oxford University Press, 1937.

Kriedt, P. H., and M. Bentson. *Jobs in Industrial Relations*. Minneapolis: Industrial Relations Center, University of Minnesota, 1947.

Kugelmass, I. N., *Superior Children through Modern Nutrition*. New York: E. P. Dutton & Company, Inc., 1942.

LaPorte, W. R., "A System of Personality Ratings for Prospective Physical Training Teachers." *American Physical Education Review*, 1922, **27**, 23–24.

Lawton, George, *Aging Successfully*. New York: Columbia University Press, 1946.

———, *Counselling the Older Person*. New York: Columbia University Press (to be published).

———, "Does Psychology Deserve Its Popularity?" *Journal of Adult Education*, 1940, **12**, 138–141.

———, "Psychological Guidance for Older Persons," in E. V. Cowdry, *Problems of Aging* (2nd ed.). Baltimore, Md.: The Williams & Wilkins Company, 1942.

——— (ed.), *New Goals for Old Age*. New York: Columbia University Press, 1943.

Learned, William S.; William C. Bagley; et al., *The Professional Preparation of Teachers for American Public Schools*. New York: Carnegie Foundation for the Advancement of Teaching, 1920.

Lewerenz, A. S., *Tests in Fundamental Abilities in Visual Art*. Los Angeles: Southern California Book Depository, Ltd., 1927.

Lewisohn, S. A., *Human Leadership in Industry; The Challenge of Tomorrow*. New York: Harper & Brothers, 1945.

Life Magazine, "Continuing Study of Magazine Audiences." New York: *Life Magazine* Report No. 1, 1938; Report No. 8, 1946.

Link, H. C., *Education and Industry*. New York: The Macmillan Company, 1923.

———, "Practices and Services of the Psychological Service Center." *Journal of Consulting Psychology*, 1938, **2**, 149–154.

———, *The Return to Religion*. New York: The Macmillan Company, 1936.

Lloyd-Jones, E. McD., and M. R. Smith, *A Student Personnel Program for Higher Education*. New York: McGraw-Hill Book Company, Inc., 1938.

Loehr, N. S., "Occupational Guidance Service in a Public Library." *American Library Association Bulletin*, 1941, **35**, 18–22.

Long, L., "Professional Status and Training of Psychologists." *Journal of Consulting Psychology*, 1946, **10**, 104–108.

Lorimer, F., and F. Osborn, *Dynamics of Population*. New York: The Macmillan Company, 1934.

Louttit, C. M., "Library Classification for Psychological Literature." *The Psychological Record*, 1941, **4**, 350–364.

———, "The Nature of Clinical Psychology." *Psychological Bulletin*, 1939, **36**, 361–389.

Lowrey, L. G., "Counseling and Therapy." *American Journal of Orthopsychiatry*, 1946, **16**, 615–622.

Lull, P. E., "The Effectiveness of Humor in Persuasive Speech." *Speech Monographs*, 1940, **7**, 26–40.

Lynd, R. S., *Knowledge for What?* Princeton, N. J.: Princeton University Press, 1939.

Martin, L. J., *A Handbook for Old Age Counsellors*. San Francisco: Old Age Counselling Center, 1944.

———, and C. deGruchy, *The Foundation Planks of the Old Age Center*. San Francisco: Old Age Counselling Center.

——— and ———, *Salvaging Old Age*. New York: The Macmillan Company, 1930.

——— and ———, *Sweeping the Cobwebs*. New York: The Macmillan Company, 1933.

McDiarmid, E. W., *The Library Survey; Problems and Methods*. Chicago: American Library Association, 1940.

McDonald, E. T., "A Study of Some Factors Related to Conversational Ability." *Speech Monographs*, 1945, **12**, 88–93.

McGowan, C. L., "Counseling as Social Case Work; Counseling in Industry." *Social Service Review*, 1943, **17**, 135–137.

Meier, N. C., *Art in Human Affairs*. New York: McGraw-Hill Book Company, Inc., 1942.

———, "Recent Research in the Psychology of Art," Chap. 26 in National Society for the Study of Education, *Fortieth Yearbook: Art in American Life and Education*. Bloomington, Ill.: Public School Publishing Company, 1941.

Meltzer, H., "Mental Hygiene and Learning." *Journal of Applied Psychology*, 1942, **26**, 268–284.

Miller, J. G., "Clinical Psychology in the Veterans Administration." *American Psychologist,* 1946, 181–189.

Mills, C. A., "The Influence of Climate and Geography on Health." *Bulletin of the New York Academy of Medicine,* 1941, **17,** 922–933.

Mitchell, David, "The Clinical Psychologist." *Journal of Abnormal Psychology,* 1919, **14,** 325–332.

———, "Private Practice in Clinical Psychology," in R. A. Brotemarkle (ed.), *Studies in Honor of Lightner Witmer.* Philadelphia, Pa.: University of Pennsylvania Press, 1931.

Mohr, G.; M. Gerard; and H. Ross, "Summary of a Psychoanalytic Study of Asthmatic Children." *Psychosomatic Medical Monograph,* 1941, No. 4.

Monroe, A. H., *The Measurement and Analysis of Audience Reaction to Student-Speakers; Studies in Attitude Changes.* Lafayette, Ind.: Purdue University, Division of Educational Reference, 1937.

Moodie, W., *The Doctor and the Difficult Child.* New York: The Commonwealth Fund, 1940.

Moore, B. V. (gen. chm.), "Proposed Program of Professional Training in Clinical Psychology." *Journal of Consulting Psychology,* 1943, **7,** No. 1, 23–26.

Morrow, W. R., "The Development of Psychological Internship Training." *Journal of Consulting Psychology,* 1946, **10,** 165–183.

———, et al., "Internship and Externship Programs." *Journal of Consulting Psychology,* 1946, **10,** 165–236.

Mueller-Freienfels, Richard, *The Evolution of Modern Psychology.* New Haven, Conn.: Yale University Press, 1935.

Mullendore, J. M., "A New State Program of Speech Reeducation in Virginia." *Quarterly Journal of Speech,* 1947, **33,** 361–365.

Murphy, G., and F. Jensen, *Approaches to Personality.* New York: Coward-McCann, Inc., 1932.

Murray, H. A., et al., *Explorations in Personality.* New York: Oxford University Press, 1938.

Mursell, J. L., *The Psychology of Music.* New York: W. W. Norton & Company, Inc., 1937.

Myers, G. E., *Principles and Techniques of Vocational Guidance.* New York: McGraw-Hill Book Company, Inc., 1941.

Nash, J. B., "The Role of Physical Education in Character Education." *Journal of Health and Physical Education,* 1933, **4,** 28–29.

——— (ed.), *Mind-Body Relationships.* New York: A. S. Barnes & Co., Inc., 1931.

Odoroff, M. E., "Occupational Background of Cerebral Palsy." *American Journal of Mental Deficiency,* 1945, **49,** 369–372.

Office of Vocational Rehabilitation, *Efficiency of the Impaired Worker; A Review of Information on the Experience of Employers of Handicapped Workers.* Washington, D. C.: Rehabilitation Service, 1946.

"On Certification and Licensing" (symposium). *Journal of Consulting Psychology,* 1941, **5,** 49–79.

Onthank, K. W., "Guidance Staff and Organization in Higher Institutions." *Occupations,* 1934, **12,** 93–101.

Osborn, F., *Preface to Eugenics.* New York: Harper & Brothers, 1940.

Palevsky, M., *Counseling Services for Industrial Workers.* New York: Family Welfare Association of America, 1945.

Paterson, D. G., "Applied Psychology Comes of Age." *Journal of Consulting Psychology,* 1940, **4,** 1–9.

Pennington, L. A.; R. B. Hough, Jr.; and H. W. Case, *The Psychology of Military Leadership.* New York: Prentice-Hall, Inc., 1943.

Personnel Administration in Libraries. Chicago: University of Chicago Press, 1946.

Pintner, R.; John Eisenson; and M. B. Stanton, *The Psychology of the Physically Handicapped.* New York: Appleton-Century-Crofts, Inc., 1941.

Poffenberger, A. T., "Psychology; Academic and Professional." *Journal of Consulting Psychology,* 1945, **9,** 1–7.

Powers, E., "Psychology and the Law." *Journal of Abnormal and Social Psychology,* 1937, **32,** 258–274.

Pressey, S. L., "Time-Saving in Professional Training." *American Psychologist,* 1946, **1,** 324–329.

Preu, P. W., *Outline of Psychiatric Case Study.* New York: Paul B. Hoeber, Inc., 1939.

Radin, M., *The Law and Mr. Smith.* Indianapolis, Ind.: Bobbs-Merrill Company, 1938.

Raphael, T., "Mental Hygiene Services for Colleges and Universities." *Mental Hygiene,* 1937, **21,** 559–568.

———, "The Place and Possibilities of the Mental Hygiene Approach on the College Level." *American Journal of Psychiatry,* 1936, **92,** 855–876.

"Report of the Committee of Psychology to Problems of Preparing for Teaching." *Journal of Consulting Psychology;* June, 1942, **6,** No. 3, 165–167.

Richardson, H. B., *Patients Have Families.* New York: The Commonwealth Fund, 1945.

Robinson, E. S., *Law and the Lawyers.* New York: The Macmillan Company, 1935.

Robinson, F. P., *Effective Study.* New York: Harper & Brothers, 1946.

Robinson, K. F., "An Experimental Study of the Effects of Group Discussion upon the Social Attitudes of College Students." *Speech Monographs,* 1941, **8,** 34–57.

Rogers, C. R., "The Psychologists' Contributions to Parent, Child and Community Problems." *Journal of Consulting Psychology,* 1942, **6,** 8–18.

———; B. L. Kell; and H. McNeil, "The Role of Self-Understanding in the Prediction of Behavior." *Journal of Consulting Psychology,* 1948, **12,** 174–186.

Russell, G. O., *Speech and Voice.* New York: The Macmillan Company, 1931.

Russell, J. D., *Student Personnel Services in Colleges and*

Universities. Proceedings of the Institute for Administrative Officers of Higher Institutions, 1941. Chicago: University of Chicago.

Schieffelin, B., and G. C. Schwesinger, *Mental Tests and Heredity.* New York: Galton Publishing Company, Inc., 1931.

Schmidt, F., "Counseling as Social Case Work; Counseling in Industry by a Family Welfare Agency." *Social Service Review,* 1943, **17,** 139–140.

Schneck, J. M., "Bibliotherapy and Hospital Library Activities for Neuropsychiatric Patients; A Review of the Literature with Comments on Trends." *Psychiatry,* 1945, **8,** 207–228.

Schoen, Max, *The Psychology of Music.* New York: The Ronald Press Company, 1940.

Schwesinger, G. C., "The Role of Psychology in Eugenics." *Journal of Heredity,* 1941, **32,** 319–324.

———, "Studies in the Genesis of Psychological Characteristics," in Frederick Osborn (ed.), *Heredity and Environment.* New York: The Macmillan Company, 1934.

Sears, R. R., "Graduate Training Facilities." *American Psychologist,* 1946, **1,** 135–141.

Seashore, C. E., *Psychology of Music.* New York and London: McGraw-Hill Book Company, Inc., 1938.

———, *In Search of Beauty in Music; A Scientific Approach to Musical Esthetics.* New York: The Ronald Press Company, 1947.

———, *Why We Love Music.* Philadelphia, Pa.: Oliver Ditson Company, Inc., 1941.

Selling, L. S., "Standards of Training and Experience in Terms of Job Specifications as a Basis of Certification." *Journal of Consulting Psychology,* 1941, **5,** 66–69.

Shakow, D., "The Functions of the Psychologist in the State Hospital." *Journal of Consulting Psychology,* 1939, **3,** 20–23.

———, "An Internship Year for Psychologists (with Special Reference to Psychiatric Hospitals)." *Journal of Consulting Psychology,* 1938, **2,** 73–76.

———, "Training for the Clinical Application of Test Techniques," in M. R. Harrower (ed.), *Training in Clinical Psychology.* New York: Josiah Macy, Jr., Foundation, 1947, pp. 21–27.

———, "The Training of the Clinical Psychologist." *Journal of Consulting Psychology,* 1942, **6,** 277–288.

———, "Training in Clinical Psychology: 1. A Note on Trend." *Journal of Consulting Psychology,* 1945, **9,** 240–242.

———, "The Worcester Internship Program." *Journal of Consulting Psychology,* 1946, **10,** 191–200.

———, et al., "Graduate Internship Training in Psychology. Report by the Sub-committee on Graduate Internship Training to the Committees on Graduate and Professional Training of the American Psychological Association and the American Association for Applied Psychology." *Journal of Consulting Psychology,* 1945, **9,** 243–266.

Sherman, M., *Basic Problems of Behavior.* New York: Longmans, Green & Company, Inc., 1941.

———, and T. R. Henry, *Hollow Folk.* New York: Thomas Y. Crowell Company, 1933.

———, and H. Jost, "Quantification of Psychophysiological Measures." *Psychosomatic Medicine,* 1945, **1,** 215–219.

"Social and Psychological Factors Affecting Fertility." *Milbank Memorial Fund Quarterly,* 1945 and 1946.

Southall, J. P. C., *Introduction to Physiological Optics.* New York: Oxford University Press, 1937.

Sponberg, H., "A Study of the Relative Effectiveness of Climax and Anti-Climax Order in an Argumentative Speech." *Speech Monographs,* 1946, **13,** 35–44.

Stafford, G. T., *Sports for the Handicapped.* New York: Prentice-Hall, Inc., 1939.

Stagner, R., "Attitudes of Corporate Executives Regarding Psychological Methods in Personnel Work." *American Psychologist,* 1946, **1,** 540–541.

Staley, S. C., "Sports and Military Preparedness." *Illinois School Board Journal,* 1941, **7,** 51–56, 65–66.

Steer, M. D., "Licenses for Psychologists and Applied Fields." *The Indiana Association of Clinical Psychologists News,* 1940, **7,** 5–6.

Steiner, Lee, R., *Where Do People Take Their Troubles?* Boston: Houghton Mifflin Company, 1945.

Stodgill, R. M., "Attitudes of Parents, Students and Mental Hygienists toward Children's Behavior." *Journal of Social Psychology,* 1933, **4,** 486–489.

Stoke, S. M., "Undergraduate Training for Graduate Students of Psychology." *American Psychologist,* 1946, **1,** 113–115.

Strang, R., *The Role of the Teacher in Personnel Work* (ref. ed.). New York: Teachers College Bureau of Publications, Columbia University, 1946.

Sullivan, H. S., "Conceptions of Modern Psychiatry," The First William Alason White Memorial Lectures. *Psychiatry,* 1940, **3,** 1–117.

Suranyi, J., "Das psychische Symptom in der kinderoerztlichen Praxis." *Kinderpsychologie,* 1943, **10,** 29–36.

Symonds, P. M., "Problems Falling within the Scope of Psychological Counseling." *Journal of Applied Psychology,* 1937, **21,** 66–74.

Teagarden, F. M., *Child Psychology for Professional Workers.* New York: Prentice-Hall, Inc., 1946.

Terman, L. M., et al., *Psychological Factors in Marital Happiness.* New York: McGraw-Hill Book Company, Inc., 1938.

———; C. M. Cox; et al., *Genetic Studies of Genius.* Palo Alto, Cal.: Stanford University Press, 1926–1930.

Thompson, W. H., "A Description of the New Psychological Clinic at the University of Omaha." *American Journal of Mental Deficiency,* 1940, **45,** 56–58.

Thorndike, E. L., *Your City.* New York: Harcourt, Brace & Company, Inc., 1939.

Timasheff, N. S., *An Introduction to the Sociology of Law*. Cambridge, Mass.: Harvard University, Committee on Research in the Social Sciences, 1939.

Timmons, W. M., "Sex Differences in Discussion." *Speech Monographs*, 1941, **8**, 69–75.

Tomkins, S. S. (ed.), *Contemporary Psychopathology*. Cambridge, Mass.: Harvard University Press, 1943.

Towle, C., "Common Human Needs; An Interpretation for Staff in Public Assistance Agencies." *Public Assistance Reports*, 1945, No. 8.

Travis, L. E., and D. W. Baruch, *Personal Problems of Everyday Life*. New York: Appleton Century-Crofts, Inc., 1941.

Tulchin, S. H., "Present and Future Diagnostic Role of the Clinical Psychologist." *American Journal of Orthopsychiatry*, 1942, **12**, 397–405.

Ulman, J. N., *A Judge Takes the Stand*. New York: Alfred A. Knopf, Inc., 1936.

Vernon, W. H. D., "Some Professional Problems of the Consulting Psychologist." *Journal of Consulting Psychology*, 1946, **10**, 136–142.

Vogeler, R. F., "Application of Psycho-physical Method in Determining an Intramural Sports Program." *Research Quarterly*, 1931, **2**, 114–118.

Wallin, J. E. W., *The Mental Health of the School Child*. New Haven: Yale University Press, 1914.

Waples, D., *Investigating Library Problems*. Chicago: University of Chicago Press, 1939.

Watson, G., "Areas of Agreement in Psychotherapy." *American Journal of Orthopsychiatry*, 1940, **10**, 698–710.

Weihofen, H., *Insanity as a Defense in Criminal Law*. New York: The Commonwealth Fund, 1933.

Wells, F. L., et al., "Psychologists' Functions in Hospitals." *Journal of Consulting Psychology*, 1944, **8**, 267–322.

Wertham, F., and L. Golden, "A Differential-Diagnosis Method of Interpreting Mosaics and Colored Block Designs." *American Journal of Psychiatry*, 1941, **98**, 124–131.

Wheeler, J. L., *Progress and Problems in Education for Librarianship*. New York: Carnegie Corporation of New York, 1946.

White, W. A., *Twentieth Century Psychiatry*. New York: W. W. Norton & Company, Inc., 1936.

Whitmer, C. A., "How is Psychology Used in Law and Criminology? Part I. Psychology in Law," Chap. 9 in J. Gray, et al., *Psychology in Use*. New York: American Book Company, 1941.

Wickman, E. K., *Children's Behavior and Teachers' Attitudes*. New York: The Commonwealth Fund, 1928.

Wiener, M. (ed.), *Ophthalmology in the War Years: Vol. I (1940–1943)*. Chicago: Year Book Publishers, Inc., 1946.

Wiens, B. J., *Organization of Pupil-Personnel Services in City School Systems*. Cleveland, Ohio: Western Reserve University Library, 1941.

Wigmore, J. H., *The Science of Judicial Proof* (3rd ed.). Boston: Little, Brown & Company, 1937.

Wilke, W. H., "An Experimental Comparison of the Speech, the Radio and the Printed Page as Propaganda Devices." *Archives of Psychology*, 1934, No. 169.

———, "A Speech Profile." *Quarterly Journal of Speech*, 1940, **26**, 625–630.

———, and J. F. Snyder, "American Speech Preferences." *Speech Monographs*, 1942, **9**, 91–110.

Williams, J. F., *The Principles of Physical Education* (4th ed.). Philadelphia, Pa.: W. B. Saunders Company, 1942.

———; J. I. Dambach; and N. Schwendener, *Methods in Physical Education*. Philadelphia, Pa.: W. B. Saunders Company, 1932.

Williamson, E. G., *How to Counsel Students*. New York: McGraw Hill Book Company, Inc., 1939.

Wilson, L. R., "The American Library School Today." *Library Quarterly*, 1937, **7**, 211–245.

Wisconsin Department of Public Instruction, *Provisions of the Wisconsin Statutes of 1939 Affecting Services Carried on by the Bureau for Handicapped Children*. Madison, Wis.: Wisconsin Department of Public Instruction, 1940.

Wolfle, D., "The Reorganized American Psychological Association." *American Psychologist*, 1946, **1**, 3–6.

Woodworth, R. S., "Heredity and Environment; A Critical Survey of Recently Published Material on Twins and Foster Children." *Social Science Research Council Bulletin*, 1941, No. 47.

Woolbert, C. H., "The Audience." *Psychological Review Monographs*, 1916, **21**, 36–54.

Ziegfeld, E., *An Experimental Investigation to Determine the Effect of Different Methods of Instruction in Painting and Drawing on the Ability to Make Discriminatory Judgments in the Field of Painting and in Other Fields of Art*. Minneapolis, Minn.: University of Minnesota Press, 1946.

Zoethout, W. D., *Physiological Optics*. Chicago: The Professional Press, Inc., 1939.

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