

UNIVERSAL
LIBRARY

OU_152307

UNIVERSAL
LIBRARY

OSMANIA UNIVERSITY LIBRARY

Call No. 192.7/K81I Accession No. 29980

Author A. Koesster

Title Insight and Outlook

This book should be returned on or before the date last marked below.

INSIGHT AND OUTLOOK

ARTHUR KOESTLER

. .

INSIGHT
AND
OUTLOOK

AN INQUIRY INTO THE COMMON FOUNDATIONS
OF SCIENCE, ART AND SOCIAL ETHICS

LONDON
MACMILLAN & CO. LTD
1949

COPYRIGHT

PRINTED IN GREAT BRITAIN

TO MAMAINÉ

*for her remarkable patience
with this book and its author*

He said, that new Systems of Nature were but new Fashions, which would vary in every Age; and even those who pretend to demonstrate them from Mathematical Principles, would flourish but a short Period of Time, and be out of Vogue when that was determined.

—SWIFT, *A Voyage to Laputa*

ACKNOWLEDGMENT

The author wishes to express his very sincere thanks to Dr Eric B. Strauss, M.A., D.M., B.Ch. (Oxon); F.R.C.P., for reading the manuscript, and for his many valuable corrections and suggestions.

Preface

1

ARTISTS treat facts as stimuli for imagination, whereas scientists use imagination to coordinate facts. The aim of this book is, first, to show that such distinctions are not fundamental, that all the creative activities of man are based on a common pattern, and to present a unifying theory of humour, art and discovery, in which these are shown to differ merely in degree and not in kind. Secondly, the attempt is made to show the possibility of a system of ethics which is neither utilitarian nor dogmatic, but derived from the same integrative tendency in the evolutionary process to which the creative activities of art and discovery are traced.

2

It may seem curious to start a book on this subject with an analysis of so remote and complex a phenomenon as the comic. The usual textbook method is to begin with relatively simple phenomena, and to progress in an orderly fashion to more complex problems. But textbooks are post-factum rearrangements of long and devious processes of inquiry which as a rule have equally specific and sometimes abstruse problems as their starting point. The so-called "elementary" concepts are the end, not the beginning, of organic developments of thought—the condensed drops in the analyst's retort.

However, the choice of the comic as point of departure of the present inquiry is not purely accidental. As the bizarre symptoms of hysteria yielded an unexpected clue to the interrelation of psyche and soma in general, so the puzzling phenomenon of laughter may serve as a backdoor approach to the creative mental functions. Some of the reasons why this should be so are set out in the first chapter

of this volume, although they only dawned on the author gradually, after he had worked out a theory of the comic which seemed capable of wider development.

3

In the course of developing this theory it became necessary to introduce three *ad hoc* hypotheses. None of these is very startling; rather they appear as crystallizations of convergent trends in contemporary psychology and biology. Nevertheless their combination leads to somewhat unexpected results.

The first is the notion of *operative fields*, that is, plastic patterns of behaviour and thought, organized according to habit-grown selective rules, and adaptable to situations varying within certain limits. It embraces William James's "scheme of relations of the stream of consciousness," Köhler's Gestalt configurations, and Ogden's "contexts" as particular instances in a generalized set of laws.

The second *ad hoc* hypothesis, derived from the first, is the notion of *bisociation*, that is, the simultaneous correlation of an experience to two otherwise independent operative fields. It is claimed that routine adaptations are associative, that is, move within the framework of the appropriate field, while original adaptations such as creative achievements in art and discovery, as well as certain aspects of dreaming, are based on bisociative processes.

Thirdly, it is assumed that disequilibrium in organic systems under conditions of stress leads to a conflict between *self-assertive* (aggressive-defensive) and *self-transcending* (integrative) tendencies of behaviour. These opposite tendencies are not meant to express any metaphysical dualism, such as Freud's Eros and Thanatos, but processes of polarization observable on various levels of the evolutionary scale.

4

From a purely psychological point of view, the introduction of new hypotheses and of new terms would appear justified if it led to a system free of contradictions, and to predictions verifiable by

experiment. But, to take the latter test first, analysts of the orthodox Freudian, Jungian, and Adlerian schools all achieve some therapeutical results which seem to confirm prediction by experiment, though the theories on which the predictions are based are sometimes diametrically opposed to each other. The reason for this, and for the indecisive nature of the purely psychological approach in general, is the metaphorical character of psychological terms like "repression," "censor," "super-ego," "inferiority complex," and so forth, and the tautologies to which their manipulation often leads. Köhler, in his Page-Barbour lectures, spoke of "the threads of purely psychological information which disappear everywhere into another domain which is not accessible to our methods." This other domain is neurophysiology, and Köhler was the first exponent of a contemporary psychological school who had the courage to venture into its territory. It implies no materialistic or any other philosophical bias if one holds that the aim of both psychology and physiology must be the "convergence and ultimate coalescence of both" (Lashley). The realization of this aim may still be distant, but it is nevertheless true that the ultimate test of any psychological theory lies in the borderland where the loose threads trailing behind our psychological symbols join the realm of biology.

Accordingly, when the three *ad hoc* hypotheses referred to above seemed to lead to a fairly satisfactory account of the creative mental functions, their validity was checked against recent trends in neurology and biology. The concept of the operative field was then found to represent a direct translation into psychological terms of the theory of memory traces as selective resonator systems suggested in various forms by Jacques Loeb, Paul Weiss, Bleuler, Lashley, Adrian, E. B. Strauss, and others, and to yield a satisfactory interpretation of the phenomena of aphasia and kindred disorders caused by brain injuries. As for the hypothesis of the polarity of self-asserting and integrative tendencies of behaviour, it seemed to be in agreement with recent advances in biology, such as Child's work on physiological gradients, Coghill's research into the development of the nervous system in *Amblystoma*, Kapper's discovery of neurobiotaxis, Carrel's

tissue cultures, with the works of Cannon, Bard, Ramsoun and Magoun on the autonomic nervous system, and with the "holistic" approach to biology in general.

An attempt to synthesize these various trends will be found in Volume Two, which is in preparation and will, it is hoped, appear twelve months after the first.

The present volume, however, is self-contained and comprises the broad outline of the whole theory. The task of the second volume is its elaboration and coordination with biology, neurophysiology, animal and child psychology, and so forth. Thus, inevitably, a number of objections will arise from the matter of Volume One which can only be met in Volume Two. The psychologist in particular will probably feel the need for a more detailed treatment of the theoretical aspects of the operative field, of the integration of lower into more complex fields, of the relation of bisociative to associative processes, and so forth. A detailed treatment of these and other implications of the theory had to be reserved for Volume Two, as it would have disrupted the unity of this general outline and made it tedious for the reader.

5

Thus the present volume follows in broad outline the original process of the working-out of the theory, while Volume Two is an attempt to put it on a more scholarly foundation.

Accordingly, the terminology of this volume is rather loose, and falls considerably short of the requirements of semantic purism. This is as inevitable in the first tentative stages of formulating a new theory, as it is necessary that in its final shape it should stand the acid test of semantic analysis.

A second consequence of the "unfolding," as opposed to the "textbook," method is the disproportionately large place which the Comic occupies. As a result, the first chapter, pp. 1-16, is probably the most tedious in the whole book.

6

Like many others before him, the author has tried to strike a precarious balance between the claims of the general reader and of the specialist, between intelligibility and precision. The result, as usual, is that verbose passages boring to the scholar alternate with others over which the general reader may stumble. In cases of doubt, the decision went in favour of the latter—except in this preface, where brevity was the main consideration. Prefaces anyway are a necessary evil and only make sense after the work itself has been read. All that they can do before is to tell the reader whether a book is about Chinese jade carving or the aetiology of duodenal ulcers. This book, then, is about some of the forces and circumstances which make men laugh, weep, create, and destroy their creation; and, very indirectly, about some of the reasons for believing that the present crisis in our civilization is not the end, but only a transition.

BLAENAU FFESTINIOG

December 1947

P.S. At the time of correcting the proofs, the author was acting as a war correspondent in Palestine. Cut off from his library, and deprived of normal means of communication with the outside world, it was in some cases impossible for him to insert page reference numbers into the footnotes relating to works quoted in the text. He wishes to apologize to the reader for any inconvenience caused by this unavoidable omission.

TEL AVIV

July 1948

Contents

Preface

PART ONE: THE COMIC

I	<i>Laughter as a Luxury Reflex</i>	3
II	<i>The Cognitive Geometry of the Comic Stimulus</i>	17
III	<i>Aspects of Comic Technique</i>	27
IV	<i>Bisociation and the Operative Field</i>	36
V	<i>The Emotional Dynamics of the Comic</i>	54
VI	<i>Application of the Theory to Various Forms of the Comic</i>	71
VII	<i>Application of the Theory to Various Forms of the Comic—Continued</i>	94

PART TWO: SELF-ASSERTION AND SELF-TRANSCENDENCE

VIII	<i>Physiology of Crying</i>	113
IX	<i>Psychology of Crying</i>	117
X	<i>Biological Foundations of the Integrative and Self-Assertive Tendencies</i>	130
XI	<i>Some Aspects of the Behaviour of Social Wholes</i>	155
XII	<i>Primitive and Infantile Forms of Self-Transcendence</i>	171
XIII	<i>General Forms of Self-Transcendence</i>	180
XIV	<i>Ambivalence, Vehicle Function, and Sublimation</i>	195
XV	<i>Civilization and the Pleasure Principle</i>	204
XVI	<i>The Regenerative Equilibrium of Civilizations</i>	221

PART THREE: THE NEUTRAL ARTS— INVENTION AND DISCOVERY

XVII	<i>The Exploratory Drive</i>	239
XVIII	<i>The Eureka Process</i>	245
XIX	<i>Emotional Dynamics of the Neutral Arts</i>	266

PART FOUR: THE EMOTIVE ARTS

XX	<i>Introductory</i>	277
XXI	<i>Patterns of Illusion</i>	292
XXII	<i>The Technique of Illusion: Originality, Relevance, and Economy</i>	304
XXIII	<i>Metaphor, Poetic Imagery, and Archetypes</i>	317
XXIV	<i>Sources of Poetic Inspiration</i>	333
XXV	<i>Rhythm and Metre</i>	348
XXVI	<i>Character and Identification</i>	355
XXVII	<i>Conflict and Plot</i>	364
XXVIII	<i>The Night Journey—or the Meeting of the Tragic and Trivial Planes</i>	371
APPENDIX I	<i>A Note on Nature and the Visual Arts</i>	383
APPENDIX II	<i>Other Theories of the Comic: Bergson and Freud</i>	417
SELECTED BIBLIOGRAPHY		431
INDEX		435

Plates

PLATE I	<i>facing</i>	11
PLATE II	<i>facing</i>	77
PLATE III	<i>facing</i>	80
PLATE IV	<i>facing</i>	383

PART ONE

THE COMIC

*The aged catch their breath,
For the nonchalant couple go
Waltzing across the tightrope
As if there were no death
Or hope of falling down;
The wounded cry as the clown
Doubles his meaning, and O
How the dear little children laugh
When the drums roll and the lovely
Lady is sawn in half.*

—AUDEN, *The Sea and the Mirror* *

I

Laughter as a Luxury Reflex

ONE of the synonyms for *Homo sapiens* is "the laughing animal." Now laughter is only one among the specific distinguishing marks of our species, and certainly not the most obvious one. Yet there are no such expressions as "the tool-using animal," "the talking animal," "the crop-producing animal," "the animal which domesticates other animals." Each of these terms would be valid, but pedantic and utilitarian, whereas to be called "laughing animals" appeals to us in a flattering and evocative way. It seems to lift us to a superior level of luxury creatures in the terrestrial zoo precisely because laughter strikes us as an activity detached from any utilitarian purpose, unconnected with the struggle for survival, a kind of biological luxury. We talk of "relieving laughter," and imply by it liberation from the stress and strife of purposeful activity. On the level of biological evolution where laughter arises, an element of frivolity seems to creep into an essentially humourless universe.

But if laughter is a luxury, it is a compulsory one, for in its physiological aspect it belongs to the automatic, reflex type of action. It is this sharply outlined physiological feature which distinguishes the manifestations of humour from other "luxury" activities of the species such as art and philosophy. Whatever the thoughts and emotions roused in us when we contemplate a picture, read a poem, or study astronomy, they do not manifest themselves in a predictable behaviour pattern; alone among the complex sensory stimuli the type which we call the comic releases a definite and specific motor reflex. That a leg kicks out when the tendon under the knee is hit appears to us plausible, as both stimulus and response are on the

same coarse physiological level. But that a stimulus on such a high level of complexity as the reading of a passage in *Don Quixote* should cause a motor response on the reflex level is extremely puzzling; the more so as the muscular and visceral activities thus released—grimacing, puffing, snorting, shaking, and so forth—seem to serve no earthly purpose. Reflexes are the most practical, purposeful, indiscriminating, and humourless arrangements in our native equipment. The sudden appearance with man of a new but apparently pointless arrangement, a *luxury reflex* as it were, is a lopsided phenomenon which philosophers have at all times sensed as an irritating disturbance. The history of science contains many examples of how the following up of disturbing phenomena, for which accepted theories could provide no explanation, led to unexpected results, the implications of which went far beyond the original problems; and it is with some hope of this kind that we embark on our quest.

DEFINITION OF THE PROBLEM

The bibliography of J. Y. T. Greig's *Psychology of Laughter and Comedy*, published in 1923, comprises three hundred and sixty-three titles of works bearing partly or entirely on the subject. Philosophers and psychologists from Plato to Bergson, from Aristotle to Spencer, from Kant to Freud have tried to solve the problem of the comic by advancing original theories or elaborating previous ones. And yet at the end of the last century Ribot had to sum up the position with an admission of defeat. He writes in his *Psychologie des Sentiments*:

Pour conclure, le rire se manifeste dans des circonstances si hétérogènes et si multiples—sensations physiques, joie, contraste, surprise, bizarrerie, étrangeté, bassesse, et cetera—que la réduction de toutes ces causes a une seule reste bien problématique. Après tant de travaux sur un fait aussi banal, la question est loin d'être complètement élucidée.¹

¹ To conclude, laughter manifests itself in such varied and heterogeneous conditions—bodily sensations, pleasure, contrast, surprise, oddness, strangeness, baseness, etc.—that the reduction of all these causes to a single one remains a very problematical undertaking. After so much work spent on such a trivial phenomenon, the problem is still far from being completely explained.

Since Ribot wrote these lines, a good many more works have been published on the subject, but only two which put forward original theories of importance: Bergson's *Le Rire* and Freud's *Wit and Its Relations to the Unconscious*. In spite of their stimulating qualities neither of them completely achieves its aim, and the situation today remains basically the same as that described by Ribot in 1896.²

The reasons for this failure, the great difficulties which confront the theorist in search of a unifying formula for all variations of the comic, become obvious if one remembers the enormous range of *stimuli* capable of provoking laughter, and the varieties of *response*. At one end of the spectrum of comic stimuli, we have coarse physical excitations like tickling, pinching, squeezing; at the other, such subtle mots as Monsieur de Morignac's:

"J'appelle brochure tout ce qui ne se relit pas,"
or the Red Queen's:

"It's a poor sort of memory which only works backwards,"
in which the quality of the comic, whatever that quality may be, has reached an almost ethereal thinness. The range of the *response* is equally wide: from the healthy laughter of the child watching a clown in the circus, to Raskolnikoff's ghastly dream in which his victim, after each stroke of the ax on her skull, turns round and laughs into his face. There is the Rabelaisian laughter after the spicy joke, and the rarefied smile after a polite compliment; the cruel laughter of children at cripples, and the enigmatic smile of the Gioconda.

In fact, among all human faculties, the sense of humour has developed the richest vocabulary. To give an idea of this variety, here is a list of synonyms for laughter and the comic from Roget's *Thesaurus*. It is far from complete, as I have omitted nonspecific emotional connotations like "rejoicing" and nonspecific laughter

² The points of agreement and disagreement between the present and other theories of the comic will emerge gradually in the text, and are summed up in Appendix II.

stimuli like "kittishness"; besides, Roget's is a distinctly Victorian bouquet of words without American weeds:

a) *Verbs*: to laugh, giggle, titter, snigger, chuckle, chortle, burble, crow, cackle; to smile, simper, smirk, grin, guffaw, mock; to tickle, titillate, amuse, divert, jest, joke, gambol, frolic, banter, jeer, make fun of, make merry with; to ridicule, deride, scoff, mock, quiz, rally, fleer, flout, rag, rot, guy, roast, taunt; to parody, caricature, burlesque, travesty; to "split one's sides," to "set the table in a roar"; to burst, shout, die or hold one's sides with laughter; to "play the fool," to "jump over the moon," to be "as whimsical as a dancing bear."

b) *Substantives*: wit, humour, fun, pleasantry, drollery, jocularly, waggery, waggishness, Attic salt, badinage, farce, *espièglerie*; hilarity, glee, *gaieté de coeur*, *allégresse*, levity, jocundity, buffoonery, tomfoolery, razzle-dazzle, mirth; jest, joke, jape, quip, quirk, crank, wheeze, side-splitter, witticism, *bon-mot*, funniment, sally, quibble, *jeu d'esprit*, pun; a humorist, wag, wit, funny man, jester, joker, *drôle de corps*, *gaillard*, buffoon, *farceur*, merry-andrew, jack-pudding, tumbler, mountebank, posture-master, golliwog, harlequin, Punchinello, Scaramouch, pickle-herring, pantaloon, Joe Miller, Punch.

c) *Adjectives*: gay, merry, jocund, jocose, jocular, *folâtre*; laughable, risible, ludicrous, rompish; witty, facetious, humorous, fanciful, waggish, comic, comical, droll, funny; ridiculous, burlesque, grotesque, ironical, satirical, whimsical, scurrilous, hudibrastic.

The problem of the comic is to isolate and define the common denominator in this puzzling multitude of terms, to find the basic features of the comic stimulus and of its response, or more precisely:

a) to reduce, if possible, to one common source all causes of laughter, and

b) to reduce, if possible, to one basic process all forms of laughter.

The second part of this task presents no particular difficulties. Despite the richness of individual variations of laughter and smiling, and the equally rich vocabulary which describes them, the basic muscular and respiratory processes which characterize laughter are specific and uniform. They have been described and analysed by Darwin, Sully, Duchenne de Boulogne, Raulin, and others. The

rest of this chapter will be devoted to a short summary of these processes which make up the comic *response*. This is necessary before we can attack the real problem of the comic; that is, the reduction to one basic pattern of the varied types of intellectual and emotional stimuli which produce the comic effect.

THE REFLEX CHARACTER OF LAUGHTER

Laughter is the response to the comic stimulus. It is, we said, a luxury reflex. This is, of course, a loose and tentative formulation which immediately raises two questions: (a) What is the meaning of "luxury" when applied to biological processes? (b) How far are we justified in calling laughter a reflex?

"Luxury," according to the *Concise Oxford Dictionary*, is a "thing that one enjoys; thing desirable but not indispensable." In this loose sense we are certainly entitled to apply the term "luxury" to the higher mental activities, provided that we always keep in mind that between the desirable and the indispensable there is no sharp dividing line, only a difference in degree. However, this difference is quite considerable if we compare, for instance, the act of breathing with that of painting a picture. The painting of a picture may indirectly serve the drives of sex, hunger and domination, and laughter may have similar functions; but the activities of humour, art, or pure mathematics are relatively dispensable compared to feeding, sleeping, and breathing, and the semanticist need make no objection to our classing them in the "luxury" category on a biological scale of gradations.

"Reflexes," on the other hand, obviously range on the lowest level of the same scale; they are direct, short-circuited responses, arrangements of crystallized purpose, as it were. If laughter is a reflex as well as a luxury, it is indeed a unique, Janus-faced phenomenon. But *is* it a reflex?

The answer obviously depends on what definition of the term "reflex" we accept. Behaviourists will say that all human activities are of the conditioned-reflex type, and that this applies to the act of composing the Ninth Symphony just as much as to that of sneez-

ing. Gestalt psychologists, on the other hand, frown at the very mention of the term, and psychoanalysts behave as if they had never heard it. As for physiologists, their answers will be more concise and uniform, but not in the nature of a sharp definition. They will probably agree that the difference between so-called "reflexes" and so-called "higher nervous processes" is not a matter of categories but of degree. If certain specific features in a nervous process are clearly pronounced, we call it a "reflex"; if they are less clearly pronounced, it is a matter of taste and philosophy what we call it. Such specific features or requirements are: that the response to the stimulus should be relatively instantaneous, and that it should consist of a (relatively) stereotyped and (relatively) predictable set of movements, approximating to those of a slot automaton stimulated by a penny.³

A pure reflex which responds totally to these requirements may exist in amoebae, but certainly not in man, and probably not even in frogs. One would imagine that a decapitated frog was a pure reflex automaton, but there is, for example, Pflüger's classic experiment which contradicts this. If a drop of acid is put on the thigh of the decapitated frog, it will rub it off with the foot of the same leg, but if that foot is cut off, the frog will behave in a way rather distressing to behaviourists:

After some fruitless efforts, therefore, it gives up trying in that way, seems restless, as though, says Pflüger, it was seeking some other way, and at last it makes use of the foot of the other leg and succeeds in rubbing off the acid.⁴

Obviously it is a matter of terminology whether we call the behaviour of the decapitated frog "reflex" or not. In human behaviour it is even more difficult to draw a sharp demarcation line. Human responses are conditioned, facilitated, weakened or inhibited by experience from the moment of birth and even before;

³ If we ask that the response should also be "unconscious" or "independent of the will," we are talking in psychological, not in physiological, terms. But, in fact, these introspective aspects of reflex actions are implicitly given in the terms "stereotyped" and "predictable."

⁴ Maudsley, "Physiologie de l'esprit," *Revue philosophique*, II, 111.

our lowest innate reflexes can be changed, moulded, mated with high-level associative processes; and they are certainly not predictable in the strict sense of mechanical physics. "Many years ago," relates Darwin, "I laid a small wager with a dozen young men that they would not sneeze if they took snuff, although they all declared that they invariably did so; accordingly they all took a pinch, but from wishing much to succeed, not one sneezed, though their eyes watered, and all, without exception, had to pay me the wager."⁵

Nevertheless, when the mucous membranes inside a person's nose are stimulated with a blade of grass, one may reasonably expect an instantaneous, stereotyped, and predictable response; in other words, sneezing is undeniably a reflex type of action. If, however, we mount a grade higher in the scale and consider activities like touch typing, playing the piano or listening to a tapped Morse message, we see at once how dubious psychological criteria like "involuntary" or "unconscious" are. An experienced typist will type a letter on dictation "in her sleep"; a Morse telegrapher will automatically translate the ticked message into words, and a tired pianist in a night club will hit the keys in a way which may remind one of the convulsions of the decapitated frog. Processes which display to a high degree "automatic" features should properly be called "reflexoid" processes, if it were not for the cumbersome terminology which this would involve.

Now genuine laughter is definitely a reflexoid process. It is spontaneous, involuntary, often irrepressible. It fulfils to a high degree the biological conditions of a reflex; the response is instantaneous and consists in an individually sharply defined (stereotyped) and highly predictable set of movements. This is so much so that physiologists have often compared fits of laughter with fits of Jacksonian epilepsy.

The above is in apparent contradiction with the everyday experience that there are a thousand different forms of laughter. But this contradiction will disappear after a short survey of the bodily activities involved in laughing, and it will be seen that the puzzling

⁵ Darwin, Charles, *The Expression of the Emotions in Man and Animals*.

multitude of terms in Roget's *Thesaurus* can, on the response end, without much difficulty be reduced to one basic physiological process.

Among the numerous descriptions of the muscular changes in laughter, the following summary by Sully,⁶ though incomplete, is probably the best:

Smiling involves a complex group of facial movements. It may suffice to remind the reader of such characteristic changes as the drawing back and slight lifting of the corners of the mouth, the raising of the upper lip, which partially uncovers the teeth, and the curving of the furrows betwixt the corners of the mouth and the nostrils (the naso-labial furrows) which these movements involve. To these must be added the formation of wrinkles under the eye, which is a further result of the first movement . . . and the increased brightness of the eyes.

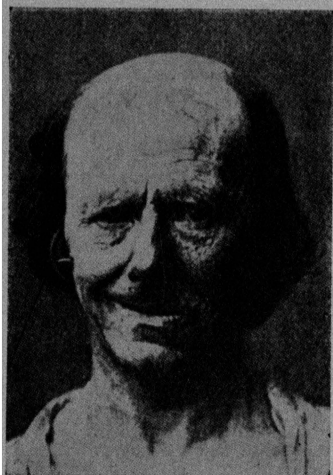
These facial changes are common to the smile and the laugh, though in the more violent forms of laughter the eyes are apt to lose under their lachrymal suffusion the sparkle which the smile brings.

We may now pass to the larger experience of the audible laugh. That this action is physiologically continuous with the smile has already been suggested. . . . It is only when laughter grows immoderate that there is a marked addition of other features, *viz*: the strong contraction of the muscles about the eyes leading to frowning, and the shedding of tears. How closely connected are smiling and moderate laughing may be seen by the tendency we experience when we reach the broad smile and the fully open mouth to start the respiratory movements of laughter. As Darwin and others have pointed out, there is a series of gradations from the faintest and most decorous smile up to the full explosion of the laugh.

One may perhaps go farther and say that the series of gradations here indicated is gone through, more or less rapidly, in an ordinary laugh. . . . The recognition of this identity of the two actions is evidenced by the usages of speech. We see in the classical languages a tendency to employ the same word for the two. . . . This is particularly clear in the case of the Latin *ridere*, which means to smile as well as to laugh, the form *subridere* being rare (Italian, *ridere* and *sorridere*; French *rire* and *sourire*; German *lachen* and *lächeln*).

We may now turn to the distinguishing characteristics of laughing; that is, the production of the familiar series of sounds. Like sighing,

⁶ Sully, J., *An Essay on Laughter* (London, 1902).



Reproduced from Dr. J.-M. Raulin's *Le rire et les ex-*
hilarants, by permission of Messrs. J.-B. Baillière et Fils

PLATE I

sobbing, and some other actions, it is an interruption of the natural rhythm of the respiratory process. . . . The obvious feature of this interruption in the case of laughter is the series of short, spasmodic, expiratory movements by which the sounds are produced. These are, however, preceded by a less noticed inspiration of exceptional energy and depth. These interruptions of the ordinary respiratory movements involve an unusually energetic action of the large muscles by which the chest is expanded, *viz.*: those which secure the contraction and so the descent of the diaphragm, and those by the action of which the ribs are elevated.

The production of the sounds by the spasmodic expiratory movements shows that the passage from the trachea into the pharynx, *viz.*: the glottis or chink between the vocal cords, is partially closed.

The important point in this description is one on which practically all authorities since Darwin agree; namely, that there is a continuous scale of gradation from the faint smile to Homeric laughter, which corresponds to the intensity of stimulation. Provided that the smile or laughter of the person is spontaneous, that is, not produced by a voluntary, conventional effort, its manifestation will move along this continuous scale as if running along a preformed track. This has been demonstrated in a series of fascinating experiments by Duchenne de Boulogne.⁷ Duchenne used galvanic currents to innervate the zygomatic major (the main lifting muscle of the upper lips) and demonstrated that by varying the intensity of the current, the corresponding contraction produced different facial expressions from timid smiles to broad grins and the mimicry of loud laughter. By alternately covering the innervated and noninnervated halves of the photographs on Plate I with a sheet of paper, one realizes how simply the apparently so complicated and subtle expressions of a smiling human face can be produced by mechanical means. Once one has experienced this startling fact, the reflexoid nature of laughter needs no further proof.

The facial expression of laughter is produced by the coordinated movements of up to fifteen main muscles. Their automatic coordination has been demonstrated by Charcot and Richet.⁸ It has further

⁷ Duchenne de Boulogne, *Le mécanisme de la physionomie humaine* (Paris, 1862).

⁸ Raulin, J. M., *Le rire et les exilarants* (Paris, 1899).

been proved by Marey and Raulin ⁹ that, as Sully suggested, in each fit of laughter the whole series of intensity gradations is rapidly gone through; Raulin's cinematographic films of tickled babies and of hysterics to whom tickling has been conveyed by suggestion, showed a reflex action swiftly increasing from the first facial innervation to the paroxysm of shaking and choking—like the quicksilver of a thermometer dipped into hot water rapidly mounting to the red mark.

Gradations of intensity are, however, not the only factor responsible for variations in the form of laughter. We said that a given person is equipped with a kind of stereotyped track along which his laughter reflex will run from the first twitch at the corners of the lips to uproarious convulsions. But this applies only to spontaneous laughter. As soon as conscious awareness intervenes, the laughter will depart from this automatic track. The impulse to laugh may be increased or suppressed like the sneeze of Darwin's snuff takers. Laughter in our society is seldom purely spontaneous. Mostly we have a foundation of automatic response to a faint stimulus, which is voluntarily reinforced by a superstructure of noises, chuckling, cackling, and so forth, which are, as it were, anticipations or substitutes of what the automatic response to a much stronger stimulus would be. On the automatic scale noises appear only at a rather high level of intensity. But in the typical giggling of adolescents, for instance, we find an automatic facial movement corresponding to a rather faint degree of amusement, combined with artificial noises feigning a high degree of it. Giggling, tittering, and so forth are a mixture of automatic and voluntary behaviour. By repetition such mixtures tend to crystallize into habit patterns, so that even the most artificial-sounding reflex-plus-pretence amalgams become characteristic properties of a person.

A third reason for the richness of variations in laughter is that the same muscular movement in different faces produces different effects. The same contraction of the upper labial elevator will produce different expressions according to whether it exposes a set of shining

⁹ *Ibid.*

white teeth or a toothless gap, and even the presence of one conspicuous gold tooth may suffice to turn a "smile" into a "smirk."

The laugher's facial structure may be regarded as the background onto which the pattern of laughter is projected. It is a relatively stable background. There is, however, another factor which complicates the issue: the changing emotional background. The left half of the young woman on Plate I shows her in a dejected, languid mood. On the right half, a smile has been superimposed on her sadness. What has been achieved here by mechanical means constantly happens in reality. One may make a melancholy, even a bereaved, person smile, but as soon as the smile is over, the person's face will revert to its initial dejected expression; and even the term "revert" is misleading, for the underlying expression of dejectedness has never left his face. The muscular contractions of the smile were merely superimposed on it, and the two muscular configurations blended into what we call a "melancholy smile."

The reaction to the comic stimulus thus appears as a process superimposed on the initial affective state of the laugher. But, as we shall see later on, the comic stimulus itself always carries a certain "emotional charge." If the laugher was in a state of neutral relaxation before stimulation, the quality of this emotional charge will determine whether the reaction takes the shape of a smile or a grin or a smirk. Otherwise, the result will obviously be a synthesis of the initial muscular expression, and that effectuated by the emotional quality of the comic stimulus.

To sum up: the reflexoid character of the motor activities in the smiling-laughing process has been experimentally established by Charcot, Richet, Raulin, Marey, and so forth. The uniformity of the reaction is, however, confused in everyday observation by the following factors: (*a*) the intensity of the reflex; (*b*) the interference of conscious facilitation or repression; (*c*) the crystallization of reflex-plus-pretence into habit patterns; (*d*) the (stable) anatomical background of the response, and (*e*) the (variable) emotional background formed by the initial emotional state and by the emotional charge carried by the comic stimulus itself.

THE COMIC CLUE TO CREATIVE THOUGHT

This discussion of the motor response to the comic stimulus has been confined to facial expression. We shall have to return to the physiology of laughter in a different context, to discuss the respiratory and endocrine processes.

For the time being, we may return more confidently to our tentative description of laughter as a luxury reflex. Its reflexoid character may be brought into sharp relief by comparing it to the bodily manifestations of other emotional states like joy, anger, or admiration. Though naturally each of these is correlated to certain physiological processes, none of them expresses itself as a specific, sharply defined response comparable to laughter. Even rage, which has a fairly characteristic individual expression, manifests itself in a diffuse way, throwing the whole body into action, while moderate laughter remains confined to a definite movement of a definite set of muscles. "Each member of the row of laughers in Hogarth's picture," remarks Gregory, "laughs differently, but each laugh is essentially the same mechanical motion."¹⁰

Among the whole range of bodily changes correlated to highly complex nervous stimuli, there is only one as specific and stereotyped as laughter; namely, weeping. The reflexoid nature of weeping is so obvious that it needs no laborious proof; and though variations of crying are produced, just as in the case of laughter, by gradations of intensity, by the interference of conscious factors, and the physiognomical plus emotional background, it is much more difficult to cry "artificially" than to laugh at will. Like laughter, weeping is a specifically human property;¹¹ it cannot be reduced to any known reflexes on a lower biological level; it is a luxury serving no apparent purpose.

The unique reflexoid character of both laughing and crying leads

¹⁰ Gregory, J. C., *The Nature of Laughter* (London, 1924).

¹¹ "Specifically human" does not mean "exclusively human." Rudiments of both laughter and crying can be observed in the higher primates just as rudiments in the use of tools can; they are forerunners of the emergence of the specific properties of man.

us to expect that they are responses to specific stimuli, to well-defined common denominators in the enormous variety of the "laughable" and the "weepable," in spite of the failure so far of all attempts to define them. The twin character of the two luxury reflexes will further lead us to expect to find a specific relation between their stimuli. Surprising as it seems, this obvious nexus between the tragic and the comic has not been followed very far by any of the authorities who have attacked the problem of laughter.

In the following chapters an attempt will be made to define the common pattern of comic stimuli, to isolate the germ of laughter, as it were—that strange bug which only prospers in the human climate, yet which has so far eluded the analytical microscope. To begin a book on the psychology of the higher mental functions with a detailed analysis of the comic may seem a roundabout and unorthodox approach. Apart from the reasons already alluded to, there is a further consideration which may help to justify the mental effort expended on an apparently so recondite subject;—namely, that in most languages the words which refer to comic invention also refer to *creative thought* as such. In the three main European languages "wit," "*esprit*," and "*Witz*" (or "*geistreich*") all have this double meaning. "Wit" is derived from the old English *uitan* = understanding; it is cognate with the German *Witz*, the Latin *videre* (to see), and the Greek *eidon* (I saw); it has its roots in the Sanscrit *veda* (knowledge). The French *esprit* is derived from the Latin *spiritus*, which means both spirit and breath (compare the Greek *pneuma*, and the Hebrew *ruakh* which signifies at the same time wind, spirit, breath, and scent). "Amusement" derives from the French *à muser* (to muse), and "musing," which comes from "muzzle," was probably the first act of reflective thought in the sense of "sniffing the air when in doubt about scent."

Obviously "wit" in the comic sense has close affinities with "wit" in the original sense of the word, and we are led to expect that an investigation of the specific type of mental activity involved in the creation of comic stimuli will lead us to the very core of the process of creative thought itself.

The further fact that the higher types of comic invention belong to the sphere of art and stand in an obvious relation of polarity to tragic art holds out some hope that if we succeed in isolating the specific pattern of the comic, we shall have found a direct approach to the problem of artistic creation.

If art critics try to apply scientific criteria, they usually land themselves in a sorry mess, as the voluminous literature of aesthetics shows. The nervous effects of listening to music, contemplating a picture, or reading a book are, like the motor responses to anger and joy, nonspecific and diffuse. There is no predictable, clear-cut reflex to tell us whether a picture pleases or displeases the visitor in an art gallery, but there is one which gives us a direct indication whether a caricature or a comedy on the stage is effective or not. Thus comic art, by producing a specific response, provides us with a tangible clue to the whole sphere of related phenomena. Like those alarm systems which signal by a sharp ring the burglar's entry into a building, whichever door or window he may choose, the laughter reflex signals the presence of that special configuration of psychic factors which releases it. And if we succeed in solving the secret of this configuration, we shall have won some insight into the working of the mind in its most intimate and elusive sphere.

II

The Cognitive Geometry of the Comic Stimulus

A CONVENIENT start for our attempt to isolate the comic stimulus is to look where it is found in its highest concentration; namely, in the witticism. As we are not interested in pedantic classifications, I shall make no distinction, unless there is a specific reason for doing so, between spontaneous witticisms, *mots d'esprit*, and made-up comic stories, anecdotes, and jokes. I shall choose my examples chiefly from those quoted by Freud, Sully, Bergson, and other authors. This will make it possible for the reader to use these examples as touchstones by which to compare our own analysis with the analyses of the original theorists. Such a choice of examples has the further advantage of making the author invulnerable to criticism regarding the taste or originality of his stories—they are venerable stories, some of which have been dragged through the literature of the subject since Schopenhauer's days—experimental rabbits which have survived many vivisections in other laboratories. "We demand no patent of nobility for our examples," Freud remarks in a similarly apologetic mood, "and the only qualifications we require are that they should make us laugh and serve our theoretical interest."

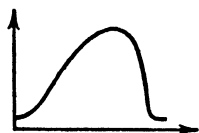
NARRATIVE AND FLASH

M. Dupont, an elderly notary of Clermont-Ferrand, has for years suffered from the annoying habits of his clerk Jules. Returning home unexpectedly from a journey, he finds Jules in bed with his wife. M.

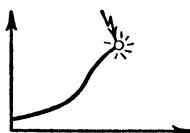
Dupont surveys the scene with a mournful eye and says: "That is enough, Jules! Once more and you are fired."

I choose this old story as my first example because I remember that in the dusty paper-cover collection of French anecdotes in which I found it, it was entitled "L'Otello de Clermont-Ferrand"; and this provides an occasion for a comparison useful to our purpose.

Othello of Venice



Othello of Clermont-Ferrand



The horizontal axis in the diagrams indicates the progress of the story in time; the vertical axis, the degree of emotional tension.

In the *tragedy*, tension rises until the middle of the fifth act. There the climax is reached; Othello strangles Desdemona; from then on the tension falls and finally fades at the end of the play. In the *comic* story there is a different pattern. The tension rises as the story progresses, but it does not reach its expected climax. Instead the curve is brought suddenly to an end by the notary's unexpected and inadequate reaction. "Once more and you are fired" debunks our dramatic expectation; it comes like a flash from the blue which decapitates the logical development of the situation. The "emotional charge" which the story carried finds its channel punctured and gushes out aimlessly from the narrative like water from a hole in a pipe; the tension is suddenly released and explodes in laughter.

This is a first and rough description, not an explanation, of the mechanism of the joke. The quality of the "flash" in our diagram is not yet defined; the diagram does not explain why the notary's reaction is perceived as comic. We said that his reaction was "unexpected and inadequate"; yet if, in the given situation, the notary had thrown his hat into the fire, that would be equally "unexpected and inadequate," but the story would have no point.

The next two examples, built on a similar pattern, will lead us a step further.

Chamfort tells a story of a marquis at the court of Louis XIV who, on entering his wife's boudoir and finding her in the arms of a bishop, walked calmly to the window and went through the motions of blessing the people in the street.

"What are you doing?" cried the anguished wife.

"Monseigneur is performing my functions," replied the marquis, "so I am performing his."

After FREUD.

A dignitary of Monte Carlo is much admired for the not less than thirty-six medals which he wears on his breast. Somebody asks him by what heroic deeds he earned them. "That's simple," he says, "I got a medal for my faithful service to the prince; I put it on a number at the roulette table and the number came up."

After BERGSON.

I quote these two stories as examples of the same logical pattern, although their emotional charge is different. In the Chamfort story the charge is of a sexual character; in the Monte Carlo story it is curiosity mixed with a slightly derogatory tendency directed against the Monegasque operetta atmosphere. But the intellectual geometry of the two stories is the same. In both cases our expectant tension is suddenly exploded by the unexpected nature of (a) the marquis's behaviour and (b) the dignitary's reply. But this time we can analyse the flash which decapitates the narrative in our diagram. The main feature which strikes us in the last story is that the dignitary's reply is in itself perfectly *logical*. If you stake *en plein* and win, you are logically entitled to thirty-six times your stake. This logic, impeccable in principle, becomes inadequate when applied to *medals*. Equally, the marquis's behaviour is guided by a logical principle: the *quid pro quo* which is at the basis of the division of labour; it only becomes ludicrous when applied to acts of a sexual or ritual nature. And returning to the notary of Clermont-Ferrand, we now see that to throw his hat into the fire would not have been funny because it would have been logically senseless—madness without method—whereas his threat to fire his clerk if the latter misbehaves again is perfectly logical and has doubtless been repeated on many past occasions by the notary. It only becomes absurd when applied to the particular action of the scene.

We are now in a position to understand the meaning of the flash in the diagram on page 18. The flash may be described as a self-contained logical chain which bears down out of the blue on the original logical chain of events in the story. We may thus tentatively formulate the pattern of the type of joke treated so far as *the intersection of two independent and self-contained logical chains*. Each of the stories carried a certain *emotional tension or "charge,"* which, as will be seen, can be altered without altering the pattern of the joke. We can visualize the intellectual pattern of the joke as the topographical layout of a system of pipes, whereas the emotional charge is represented by the liquid circulating in them; the pressure and the chemical properties of the liquid do not alter the layout of the pipes. It is of paramount importance for the following to distinguish between these two basic factors of the comic: its *logical geometry or pattern*, and its *emotional tension or charge*.

The point of intersection of the two chains we shall call the *junction*. In the Monte Carlo story the junction is the concept "medal." We can represent the two logical chains and their junction diagrammatically by writing the principle implicit in each chain in brackets.

(LOGIC OF THE GAME) for staking one you get thirty-six ● MEDALS
 (LOGIC OF MILITARY AWARDS) this man must be a hero to have so many

If our analysis of this type of story is correct, then the diagram leads to an unexpected conclusion: the narrative and the flash are both self-contained logical chains of equal value; they are not distinguished from each other by any specific characteristic, merely by their temporal succession in the story. Hence the conclusion that "narrative" and "flash" must be *interchangeable*. All we have to do is to start with the flash, invest it with a certain tension, and then

decapitate it with the line which was originally the narrative. We shall see that this can indeed be done; stories of the type so far treated are reversible; they can be told the other way round.

Here are two of our stories in reversed form.

"Imagine," says Marius to his friend Olive, "what luck I had yesterday. I walked into the casino, put my stake on number fifteen *en plein*—and up came number fifteen, paying me thirty-six times my stake."

"Marvelous," gasps Olive, "and what was your stake?"

"My medal."

"I must get rid of Jules," the notary complained in the café; "he irritates me beyond words. I tell him a thousand times, 'Don't do this' and 'Don't do that,' and he always does it again. Recently he has developed another very annoying habit—but I promised him that if it goes on I will give him the sack."

"What is it?"

"Can you beat it? He has taken to sleeping with my wife."

Similarly with Chamfort's story: it could start, for example, with a teacher expounding the principle of the division of labour and mutual assistance. He asks the class to provide concrete examples and gets this:

"Si le curé couche avec la femme de monsieur le professeur, monsieur le professeur doit dire la messe pour lui."

This reversibility of the joke (which none of the authors dealing with the subject seem to have observed) is limited, however, by the fact that the two intersecting chains have not the same emotion-carrying capacity. For example:

Heine was dying in his Paris exile. A kindly priest commended him to God's mercy, and tried to comfort him with the hope that He would forgive the great poet's equally great sins.

"Of course he will," said Heine, "that's his job."

After FREUD.

The logical pattern of the joke is simple: it is the intersection of the priest's metaphysical logic with the matter-of-fact logic of the

Jewish poet. But the first chain is capable of carrying a strong emotional charge, whereas if we start with the second, this will not be the case and the reversed joke will be accordingly feeblar:

The priest in his funeral oration at Heine's grave:

"A shopkeeper can't choose his customers, nor God Almighty his clients; we may therefore go home assured about M. Heine's celestial prospects."

The biting satire has by reversal become a cheap one, but the pattern is clearly recognizable.

Delon, a quack healer of the mesmerist school, was reproached about one of his cases:

"You boasted that you would cure M. de B., and now he is dead."

"You were not there," replied Delon, "so you could not see the result of my treatment—in fact, he died cured." After FREUD.

The two logical chains (*junction*: "died cured") become at once apparent if we reverse the joke.

"The case of M. de B.," boasted Delon, "was one of my most successful treatments. Although he died of pneumonia, I completely cured him of his headache."

And the same pattern in the laconic medical report: "Operation successful, patient dead."

"Operation successful" leads us to expect a happy ending, but this expectation of *common-sense logic* is decapitated by a flash of *professional logic*. Compare Dr. Scarlig: "Some hideous disease, a beautiful case."

The prince asked the dyer: "Can you colour my white horse blue?"

"Yes, Sire," the dyer said, "if the animal can stand the boiling."

After FREUD.

The pattern here is obviously the same as in "Operation successful, patient dead": professional logic versus bio-logic. A further example is the following mot of Lichtenberg's:

"Isn't it surprising that the two holes are cut in the pelts of cats just where the eyes are located?"

This is an intersection of bio-logic with mechanical logic, the latter implying that the holes are cut and the pelt sewed onto the tissue, as in the process of manufacturing a doll.

The last two examples, which will close the discussion of this type of joke, are classics. The first is an old Jewish story quoted by Freud.

Ike had been drafted into the artillery. He was clever, but visibly not interested in military matters, and the constant despair of his sergeant. His C.O., a kindly man, one day drew him aside and said:

"Ike, you are obviously out of place among us. I would advise you to buy yourself a cannon and set up shop on your own."

Freud takes a page and a half to analyse this story. Our analysis is as follows: Ike has the status of a soldier and the mentality of a salesman. His status is governed by the logic of "do or die" and his mentality by the logic of "sell and buy." The two logical chains intersect in "cannon," the function of which in the first chain is that of a martial and almost sacred symbol, while in the light of the second chain it appears as a business investment. (Compare the double aspect of "medal" in the Monte Carlo story.) We note that the effect of the story is partly due to the visual imagery accompanying it—representing the "Ike & Cannon Co., Ltd."—according to the reader's individual imagination. We shall discuss this visual extension of the joke, and the quality called "irony," in Chapter VII.

The last example of this group was first quoted by Schopenhauer, and has since been discussed from every possible philosophical and metaphysical angle.

A convict was playing cards with his jailers. On finding out that he cheated, they got furious and kicked him out of the prison.

Our analysis can be contained in one sentence: two self-contained logical chains ("prisoners are punished by being locked up" and "cheats are punished by being kicked out") intersect in the given

situation. In this case, as in many to follow, the junction is not a word or idea, but a *situation*.

THE COMMON PATTERN OF JOKE, PUN, WITTICISM, ETC.

Our next examples will take us a step further. The following stories are all taken from Freud.

- (1) "This girl reminds me of Dreyfus. The army does not believe in her innocence."
- (2) Two Jews met near a bathing establishment. "Have you taken a bath?" asked one. "Why?" replied the other. "Is one missing?"
- (3) Dr. Johnson said of the University of St. Andrews in Scotland, which was poor in purse but prolific in the distribution of its honours: "Let it persevere in its present plan and it may become rich *by degrees*."
- (4) One swallow does not make a summer, nor quench the thirst.
- (5) One of the first decrees of Napoleon after his coronation was the confiscation of the estates belonging to the House of Orleans. A contemporary wit commented: "*C'est le premier vol de l'aigle*."
- (6) "In a story which I recently read," says Freud, "one of the characters refers to the Christmas season as the alcoholidays."
- (7) "I was talking to him *tête à bête*."

These examples show how the character of the joke depends on the nature of the junction between the two chains. In (1) the junction is "innocence," which in one chain has a sexual and in the other a forensic meaning. In (2) "take" plays a similar double role, but the verb "to take" is so polyvalent, so much more dependent on its context than the relatively concise "innocence," that we are inclined to call the second a "play with words," whereas the first appears as a "play with thoughts" ("*jeu de mots*" and "*jeu d'esprit*"). In (3) the junction is "degrees," but although both meanings of "degree" derive etymologically from the same root, the use we make of them is so different that they seem to have no more in common than spelling and sound. In (4) spelling and sound alone remain as common denominators of "swallow"; in other words, we have left the realm of witticism proper and entered that of the

pun. But there is, as our examples show, no sharp line of division. In fact most people will have to consult the dictionary to make sure that the two "swallows" have different roots and that, therefore, (4) is a "pun" and not a "witticism"; and if, perchance, by some philological perversity, the bird's name were derived from its particular way of swallowing, the character and effect of the joke would still be the same. In (5) the junction is *vol* (flight or theft); but in spite of the general contempt in which puns are held, the *vol* story is certainly more ingenious than the horrible "taking" of the bath, though *vol* is exclusively based on sound and "take" on meaning. Finally, in (6) and (7) any intellectual pretence is dropped and the intersection of the two chains is brought about not even by an identity of sound but merely by an affinity (*alcohol-holidays*, *tête-bête*).

The various synonyms in Roget's *Thesaurus* such as joke, pun, witticism, *mot d'esprit*, *jeu d'esprit*, and so forth thus cease to be separate categories and become coordinated in a continuous series, from the simplest pun through the comic of words, comic of thoughts up to the comic of situations—the sharper turned out of prison or Hamlet hiccupping in the middle of his great monologue, thus decapitating the dramatic tension of the audience and making their emotion, through its punctured channel, explode in laughter. All these apparently so different stimuli of laughter have the same underlying plan, the geometrical pattern of two intersecting chains.

It is now time to correct our first tentative definition. We have described the pattern of the joke as the intersection of *two independent and self-contained logical chains*. But some of the later examples do not quite fit into this formula. True, the pattern of the first diagram was still found in the later examples, and each could easily be charted on a piece of paper by two sharply distinct, intersecting lines, but were we still entitled to interpret the intersecting lines in "*alcohol-holidays*" and *tête à bête* as "logical chains"? And if not, what do the lines stand for?

The answer is obvious: Freud's joyous character looking forward

to Christmas has two trains or "streams" of associations which join in the junctional syllable: .

Parties and drinks—*alcohol*.

No office — *holidays*.

Similarly, in the "operation successful, patient dead" type of joke, instead of talking about "professional logic versus biological logic," we should correctly speak of "thinking in professional terms versus thinking in common sense or natural terms." The term "logical chains" was used in order to get the geometrical pattern of the two intersecting lines clearly established in the reader's mind, for "logical chains" conveys an idea of tidy, straight lines, whereas "association streams" seems more vague and diffuse. In reality, however, associative thought habits run in grooves more firmly established than those of purely logical reasoning. By replacing the abstract notion of logical chains by that of association streams, we have moved one step closer to the dynamic reality of mental processes, though, as will be seen, this step is merely a second approximation. Meanwhile, it enables us to examine certain aspects of the technique of the comic.

III

Aspects of Comic Technique

ORIGINALITY AND FACILITATION

THE EFFECT of a joke may thus be described as the sudden clash of two swift-flowing, independent association streams in the listener's mind. The clash must have the impact of *surprise*; and this can only be achieved if every contact between the two streams is avoided until they meet at the appointed junction. But:

"A jest's prosperity lies in the ear
Of him that hears it, never in the tongue
Of him that makes it."

In other words, a person responds only to that type of joke which sets off a train of habit-formed associations, leading to automatic expectations, in his mind. Receptivity for a given kind of joke varies with intellectual level and habitus; the joke will have no effect if the listener's mind is unable to embark on the proper association current. But it will be equally ineffective if the level of his intelligence is too high, so that he takes in the whole pattern of the joke at one glance, from a bird's eye view, as it were; in this case the convergence of the two streams is seen from the beginning, and the effect of surprise is lost.

Thus children at a certain age have a predilection for scatological jokes which to the normal grownup do not appear at all funny. In the child's mind adult behaviour is informed with authority, dignity, infallibility, and dissociated from the lower physiological functions. Hence situations in which these two separate worlds interact will

be genuinely funny for the child—for example, a teacher suffering from diarrhoea. The adult, however, takes a more enlightened view of human nature; in his mind the two aspects are integrated, so that normally there is no opportunity for intersection and comic effect. Only if attention is focused on one particular aspect of a person's character, for example, his pomposity, do sudden clashes with other dissociated aspects of the total personality become possible. The dignitary at an official reception lowering himself into a chair and sitting on a drawing-pin is comic because of the sudden interaction of his public façade and his private fundament. Practical jokes are "childish" precisely because they are based on infantile dissociations of the total human being.

If, however, the social structure of a period or country is itself characterized by such infantile dissociations—for instance, in countries divided into leaders of infallible authority and followers of infantile obedience—jokes will suddenly take a vivid shape which in a different historical climate would have no effect at all. The following story was circulated and relished all over Hitlerite Germany in spite of the heavy risks incurred by those who spread it.

During the Nuremberg party rally a subversive element placed a musical box under the seat of the lavatory used by the high party officials. Whenever a Nazi bigwig lowered his pants and sat down, the box began to play the Horst Wessel song and he had to jump to attention. When the Führer mounted the platform, the gauleiters all had their trousers full.

Thus the effectiveness of jokes depends to a large extent on the historical climate and its associative polarizations. Whenever in Balzac's *Contes Drôlatiques* a monk or abbé is introduced, our associations race ahead of the story in the delectable expectation of some venal sin to come, yet when the point is reached, we still smile, sharing the author's mock indignation and pretended surprise. In other words, premonitions of the type of joke to come—of the type of flash which will cut the story's course—do not entirely destroy the comic effect, provided that we do not know when and how exactly the junction will be effected. But the enjoyment of this type

of joke is less genuinely comic and more in the nature of a social game—cover my eyes and I shall pretend to be surprised. In addition, the laughter provoked by spicy jokes is only partly genuine, that is, caused by their comic content; the rest is simply gloating, regardless of whether the story is comic or not. In these cases laughter serves as a cloak to cover the embarrassment caused by the rising of less publicly demonstrable emotions.

The receptivity for various kinds of comic stimuli thus varies according to the audience's intellectual habitus, its dominant trends of association. The humour of a given historical period reflects its mentality and is, in a way, even more typical of that mentality than the works of art and philosophy which grow out of it. The latter are individual achievements which only indirectly depend on the period's mentality, whereas comic perception depends directly on the thought habits, the associative automatisms which that society has impressed upon the individual's brain. A philosopher, misunderstood by his contemporaries, is still a philosopher; a humorist who doesn't make his audience laugh isn't a humorist.

The first criterion of comic technique was the effect of surprise, depending on the ingenuity by which the junctional clash is brought about; we call it the factor of *originality*.

The second factor is *facilitation* of the associative flow in the listener's mind. We saw that this is determined to a large extent by a subjective factor, the audience's mental habitus. A joke of a given geometrical pattern can be transposed into a number of settings; the most effective of these will be the one which is the most familiar to the listener, which represents a "relevant stimulus" to him. Local colour and dialect help to establish the atmosphere; the best stories are often regional—Scottish, Jewish, Marseillais. The mere mention of a "man from Aberdeen" strikes a chord, starts the associative flow in the desired direction. Thus facilitation depends firstly on the *choice of relevant stimuli*. At the same time, all nonessential elements of the story have to be omitted, sometimes at the price of a certain sketchiness, otherwise the current is side-tracked, the tension frit-

tered away; this is the factor of *simplification*. Thirdly, the effect is increased by certain emphatic gestures, inflections, exaggerations of dialect and slang; this is the factor of *exaggeration*.

Comic story-telling is an art, and subject to artistic technique. It will not surprise us therefore to find, later on, these technical criteria equally valid for literature and art in general. The criteria mentioned so far (originality and facilitation) are fairly obvious; less obvious, however, is the most important of all, *economy*.

ECONOMY, IMPLICITNESS AND RIDDLE-MECHANISM

Economy should not be identified with brevity. Opening Rabelais at random, we find on practically every page passages like this:

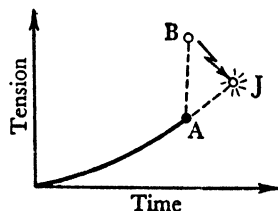
"What! always in a kitchen, friend?" said Pantagruel.

"By the belly of St. Crampacon," quoth the Friar, "I understand the customs and ceremonies which are used there, much better than all the formal stuff, antic postures and nonsensical fiddle-faddle that must be used with those women, *magni magna, shittencum-shita*, cringes, grimaces, scrapes, bows, and congées; double honours this way, triple salutes that way, the embrace, the grasp, the sneeze, the hug, the leer, the smack, *baso los manos de vostra mercé, de vostra maesta*."

And this is merely the prelude to a chapter called "Why Monks love to be in Kitchens." To whatever cause one's delight in Pantagruel is due, it is certainly not brevity; and the same applies to many of the classics of humour, from Petronius' *Satyricon* to *Don Quixote*, from Tristram Shandy to Tartarin and Schweik. If Wilde fences, Rabelais uses a sledge hammer; one tickles, the other leaves us dazed.

Economy is not synonymous with brevity; the second is merely one form of the first, employed in one particular type of the comic, the pointed witticism. We saw that the flash which decapitates the story must be swift; it must come as a surprise. While we move along the narrative branch of the diagram, we can take our time, proceed in a broad and leisurely manner. But then comes the critical moment when we prepare the point. Diagrammatically this is represented by an abrupt transfer of the narration from the first association train to the second, from *A* to *B*.

One cannot tell two stories simultaneously. At *A* the narrator must leave the first association train, and let it follow its course along the dotted line as automatic expectation in the reader's mind, while he himself starts the second train at *B* and conducts it towards the crash.



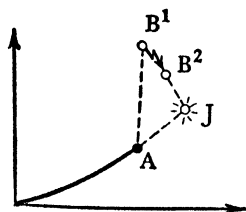
This second train has to move very fast lest the first should meanwhile lose its steam, and the flash cease to be a flash. But brevity alone will not produce the required speed. In familiar types of stories, the listener's thought associations move faster than the narrator's words. To an intelligent audience any joke will sound stale if it is entirely *explicit*. The true essence of economy is *implicitness*, which, by the use of hints and allusions in lieu of complete statements, turns the joke to a certain extent into a *riddle*. By virtue of its implicit wording, the story proceeds in jumps instead of moving along a continuous line, leaving logical gaps and thus forcing thought to race after the words and to bridge the gaps by its own effort. Thus is created the type of story which one might call "delayed-action jokes."

While the prince was travelling through his domain, he noticed a man in the cheering crowd who bore a striking resemblance to himself. He beckoned him over and asked: "Was your mother ever employed in my palace?"

"No, Sire," the man replied, "but my father was."

After FREUD.

This story has clearly the character of a riddle. We can represent it as follows:



The first branch moves up at a leisurely pace to *A* (the words "in my palace"). At this point two things happen. First, the listener has received a hint and has to draw the inference in his own mind without any further help from the actual wording. He is compelled to find out by himself what

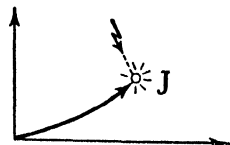
was *implied* in the prince's question. Meanwhile the narrative has jumped to point *B*, the starting point of the flash, that is, the peasant's answer. But this again is *implicit*, it merely leads from *B*₁ to *B*₂; the second thought train too has to be completed by the listener alone, along the dotted part of the flash. Thus the junction *J* is not handed on a plate to the listener as in *vol de l'aigle* or "alcoholi-day": it has to be worked out by a creative effort. We have first to solve the riddle before we can laugh. The full importance of this *riddle mechanism* of the joke will only emerge later, during our discussion of invention and discovery (Part Three).

Here is another example:

Two rather shady business men had become rich and were trying to elbow their way into society. They had their portraits painted by the most fashionable painter of the day; framed in heavy gold, the two pictures were shown for the first time to the guests at a reception in the grand style. Among the guests was a well-known art critic. The two beaming hosts led him to the wall on which the portraits were hanging side by side. The critic looked at the portraits for a long time, then shook his head as if he were missing something. At length he pointed to the bare space between the pictures and asked: "And where is the Saviour?"

After FREUD.

Here the narrative branch is nearly complete in the wording, and the interpolation is done as an extension of the flash branch (the expert's answer).



The full arrow represents the last line of the story: "Where is the Saviour?" The dotted part of the flash has to be interpolated.

A man about town showed his devotion to a young actress by lavish gifts. Being a respectable girl, she took the first opportunity of discouraging his attentions by telling him that her heart already belonged to another man. "I never aspired as high as that," was his polite answer.

After FREUD.

The junction "high" has in the first associative context a metaphorical, in the second an anatomical meaning. But the latter has

again to be reconstructed from a mere hint. The joke is based on the intersection of the metaphorical with the textual—a pattern frequently used in witticism, as well as its variation, the mixed metaphor.

ECONOMY AND RE-CREATIVE EFFORT

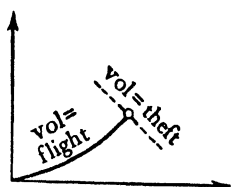
Thus economy is a means of stimulating the associative flow. It makes it impossible for attention to stray; the listener is forced to work out the story for himself by filling in the gaps. But there is another aspect to this technique. By making the listener fill in the gaps, work out the joke for himself, we force him to repeat to a certain extent the process of inventing it; he has to re-create the witticism.

Economy is a technique which compels the consumer to a creative effort. It is an essential technique in art as in humour. In both cases it does not mean mechanical brevity, but implicitness. Art does not state, but hint. It induces the consumer to participate in the artist's effort by drawing his own conclusions and projecting his own feelings. In certain types of modern writing (for example, Hemingway), and in modern painting since impressionism, economy is obvious. In classical writing at its wordiest, in classical painting at its most punctilious, there is still a second level implied: the meaning behind the meaning, a message, or philosophy, or colour harmony. We shall go more closely into the subject in Part Four. Meanwhile we note that both humour and art employ the technique of implicitness to lift the consumer out of his passive role into re-creative intellectual and emotional activity.

It may be objected that implicitness can only be found in certain types of the comic, as in our last three examples of jokes with a riddle character, whereas in our first examples it was not present. Where is the implicitness in the dignitary sitting on a drawing-pin?

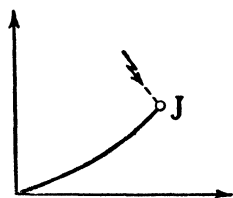
The answer is that, on closer examination, the technique of implicitness will be found, though to a lesser degree, in all our examples. Even in such primitive puns as "alcoholidays" and *tête à bête*, the intersecting chains of associations are indicated by mere hints which

we have to complete in our own minds. It is true that the junction (the sound affinity) is provided ready-made, but the two chains are given as the merest rudiments, the rest being left to our imagination.



In *le premier vol de l'aigle*, for instance, one branch of the diagram is given completely, but the second branch is indicated only by a hint, a short dash, as it were, the implications of which we have to complete by extrapolation.

If we compare the last diagram with the one representing “Where is the Saviour?” we find that in the second the creative effort consists in *filling in* a gap (between the hint and the junction), whereas in the first the effort consists in *extending* the dash. The first pattern is completed by extrapolation, the second by intrapolation; the difference is that in one case we have to discover the implication, in the other we have merely to elaborate it. But this is a rather hair-splitting distinction, because in many puns, although the junction is given, the double meaning is not at once perceived and has to be discovered, and the difference between associative extrapolation and intrapolation thus appears to be a merely formal one.



Even in the simplest comic story or situation a certain amount of “working out” is left to the listener’s or onlooker’s imagination. The dignitary and the drawing-pin make us laugh because we *interpret* his sudden jerk as caused by the pin, and complete the process by more or less conscious images of the pin’s progress in the dignitary’s backside. When Hamlet gets the hiccoughs, or the corpse in the opera sneezes, and in all cases where a poetical stream of associations is cut by a crude physiological cross-current, the debunking flash, to be effective, must not be more than a hint. The explicit statement: “This person, who pretends to be a Prince of

Denmark preoccupied with exalted ideas, is, in fact, only a ham actor who's had one too many before the play started" is certainly not comic. But if this statement is given implicitly by a single hic-cough and the rest left to our imagination, then a genuine "de-capitation" of the tension takes place. Similarly, "Once more and you are fired" by itself conveys nothing; but we extrapolate that the notary must have used the same phrase a hundred times on trivial occasions, we establish the associative climate of the dusty notary's office, and thus complete the flash. Whether it is Ike in the artillery corps or the girl who reminds one of Dreyfus, there are always some gaps or allusions whose completion requires the listener's mental collaboration.

In fact, language itself is never completely explicit; words are mere steppingstones for thoughts. When listening to speech, we have continuously to establish logical connections between the words; otherwise, as when our attention flags, they become a mere medley of sounds. Economy in art and humour has its roots in this basic mechanism of communicating thought contents by acoustic or visual signs, and is a purposeful development of this principle. It spaces out the steppingstones at intervals just wide enough to require a significant effort from the receiver of the message; it controls his course not by fixed rails but by focusing his attention on a task which he has to complete by his own exertions. The artist achieves the greatest mastery over the consumer by according him the greatest liberty; he rules his subjects by turning them into accomplices.

IV

Bisociation and the Operative Field

THE CONCEPT OF "BISOCIATION": INTRODUCTORY REMARKS

Our diagrams all show the same pattern of two unrelated association trains suddenly colliding with each other at a given point. The point of junction may be a sound suddenly perceived in a new verbal interpretation ("swallow"), a word suddenly assuming a second functional meaning ("innocence"), a situation, image, or thought concept assuming a second logical context. Generally speaking, what happens at the junction is that a thing is seen in a dual light; a mental concept is simultaneously perceived under two different angles. Thus (to quote a Bergsonian example) Punch and Judy are seen at the same time as humans and as puppets; thus Rosalind in *As You Like It* behaves simultaneously as a boy and as a girl; thus the word *vol* is simultaneously attached to the connotations of thieving and flying. The junction is a hinge or pivot with two independent thought extensions attached to it. Under normal circumstances the stream of consciousness would follow either one branch or the other, for the two belong to different systems or planes of mental organization. But the junctional concept behaves in an abnormal way; it is not merely associated to one ideational context: it serves two masters at the same time; it is "bi-sociated" with two independent and mutually exclusive mental fields.

The concept of bisociation (dual association) is fundamental to the present book. Its significance for the creative mental functions will gradually emerge in the sections dealing with art and discovery;

its neurophysiological implications will be dealt with in Volume Two. For the time being we will regard it merely as a convenient descriptive term referring to *any mental occurrence simultaneously associated with two habitually incompatible contexts*. A few remarks are needed, however, to make the meaning of the term clearer.

First, bisociation is not the same thing as ambiguity; ambiguity is merely a subcategory of it. Ambiguity is double meaning, but there is no double meaning, for example, in the word "medal" in the Monte Carlo story. "Medal" occurs there not in two different meanings but in two different associative *contexts*. Nor is there any double meaning in the suggestion of dyeing a horse if it can stand the boiling. The horse is quite unambiguous, but it has been subjected to two simultaneous and habitually incompatible thought operations. Only in certain categories of humour, like the pun, is double association reduced to double meaning.

Secondly, in the process of bisociation the junctional concept is connected simultaneously to two association complexes which, we said, are "habitually incompatible." Now, "habitually incompatible" does not mean "logically incompatible." There is nothing logically incompatible in the idea of the notary sacking his adulterous clerk. Our associative flow is regulated not by logic, but by habits of thought acquired by past experience. If the flow happens to be logical in stretches, then it is only because the type of association called "logical" has become a habit.

Thirdly, it may be objected that we can neither give our attention to two independent subjects at a time nor correlate two independent contexts, as the term bisociation implies. This point will be more fully discussed at a later stage; for the time being the psychologically trained reader may reassure himself by not taking the expression "simultaneous" textually, but as referring to a quick oscillation of the bisociated concept between its two contexts, these quick oscillations accounting for the presence of both (for example, *vol* = flight, *vol* = theft) in consciousness.

Fourthly, it should be noted that after a concept has become bisociated with two previously independent associative currents,

these cease to be "independent"; that is, the contact thus established between them will make them coalesce into one continuous flow. What came originally as a surprise has become a thought habit. Hence a joke is only effective the first time; hence, also, a revolutionary discovery becomes a platitude after a while. In other words a given bisociative connection becomes, after a few repetitions, if not at once, transformed into an ordinary associative connection and is incorporated into the mental habitus. Diagrammatically this transformation may be represented as a hammering out of the original angle into a continuous curve:

Bisociative process



Associative process



THE CONCEPT OF THE "OPERATIVE FIELD"

The theoretical equipment which our analysis has yielded up to now enables us to understand the cognitive geometry of all variations of the comic which have a single point, which both culminate and terminate at the junction where the narrative meets the flash—the joke, the witticism, the pointed anecdote. But beyond this limited realm lie the vast regions of humour—the caricature, the comedy, the humorous poem and epic—whose effects do not consist in a single explosion, but either in a series of explosions in quick succession or in a continuous mild state of amusement. A great comedian may keep his audience laughing for minutes on end without any particular gags or pointed effects; so may the pantomime horse by just moving about on the stage. It is when dealing with this sustained type of humour that most theorists of the comic give up—or their theories break down.

The difficulty confronting us here is a direct consequence of the inadequacy of present-day theories concerning the higher mental functions, and it will lead us straight to the core of the psychology of reasoning. Since William James wrote his memorable chapter on the "Stream of Consciousness," associationism in the classical sense,

that is, the unrolling of a linear chain of discrete ideas linked by similarity or contiguity, has been practically abandoned, without any generally accepted new theory of thinking having taken its place. Psychoanalysis, Behaviorism, and the Gestalt school have treated the problem of thinking each from its specific angle, but with so little common ground between them, each so much encased in its particular universe of discourse, that no comprehensive view has emerged; psychology today seems on the point not only of being divided into different schools, but of splitting up into separate sciences with fields almost as mutually independent as zoology and philology. Under these circumstances a historical approach to our problem would merely obscure the issue and get us bogged in polemics and cross-references. Instead, we shall choose the method of frontal attack, of a fresh approach, deferring our critical discussion of the existing schools, and of the points of agreement and disagreement between the present theory and theirs, to Volume Two.

The concept of bisociation implies a short-circuiting of two separate mental patterns, each of which is self-consistent and structurally homogeneous. It was this quality of self-consistency or coherence of each of the two bisociated branches in the diagrams which we referred to by calling them "logical chains" or "streams of associative habits." But both these terms are merely approximations, referring to particular forms of self-consistent organized thinking. We now have to find a more general formulation of those features which make us call certain mental processes "self-consistent" or "homogeneous." Without a clear formulation of these features, the distinction between common associative and bisociative thinking must appear as arbitrary, or meaningless.

Logical chains and streams of associations, reasoning by analogy, or by induction or deduction, syntax and grammar, thinking "in terms of" this or that, are different systems of mental processes acquired by habit. I propose to call such self-consistent and "homogeneous" systems *operative fields*. Each of these systems or fields is governed by a certain selective rule or structural law, which will be called the *selective operator of the field*. Mental occurrences which in

the individual's past have appeared in the context of a given operative field will be called *members of the field*. The term "association" then refers to any mental process within the framework of a given operative field; the term "bisociation" to mental occurrences which are perceived simultaneously as members of two operative fields.

EXAMPLES OF OPERATIVE FIELDS

The following examples will familiarize us with the meaning and explain the use of these at first perhaps slightly bewildering terms.¹

A simple example of an "operative field" is that which emerges in a certain parlour game where the participants have to write down on a piece of paper the names of all the towns they can remember, starting, for example, with the letter *L*. The *members* of the field in this case are the names of all the towns beginning with *L* which the subject has ever learned, regardless of whether at the moment he remembers them or not. The *selective operator* of the field is expressed in the "rule of the game" that association must proceed selectively according to the initial *L*. It is this rule which gives the field its specific pattern and coherence, by selecting all *L*-towns and eliminating all others.

Let a person take part for the first time in such a game. His task is to "fish out" of his memory, as it were, all towns starting with *L*. The usual methods of achieving this are the following two. The person vaguely visualizes a geographical map and then starts searching on this imaginary map for towns starting with *L*, proceeding in a given direction, for example, from east to west. The second method is by "acoustic resonance"; the subject repeats subvocally the syllables *li* (=verpool, Lincoln, and so forth), then *lo*, *la*, and so forth, and waits for his memory traces to start vibrating in response, as it

¹ Gestalt theorists frequently use the term "field" with various and sometimes loose meanings (the visual field, the total field of a situation, the electrochemical field of the self-distributing cortical currents in Köhler's physiological theory of perception, etc.) Needless to say, "operative field" is used here in a different and specific sense. The points of contact and disagreement between the present theory and the Gestalt school will emerge gradually and will be dealt with more fully in Volume Two.

were. Thus the concrete form under which the selective operator functions is, in the first case, the visual image of the capital initial letter *L*, in the second case the auditory-vocal image of the syllables *li*, *lo*, *la*, and so forth; both are used as a kind of selective tuning fork to elicit resonant vibrations from the appropriate traces.

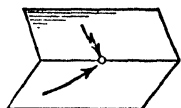
Our next example of an operative field is the sight of a chessboard with a single knight on it. The chess player sees this board not as a homogeneous mosaic of black and white squares, but as a kind of magnetic field with the lines of forces indicating the possible moves of the knight, according to the rules of the game, that is, its selective operator. If the board be covered with chessmen in a normal game, the coherence of the operative field for the experienced player will be so strong that associations of "impossible," that is, unpermitted moves, will never occur. In other words, *each operative field tends to facilitate its "permitted" type of association and to inhibit all others.*

Operative fields may also refer to certain established *codes or patterns of behaviour*. Our associations connected with film stars, sergeant majors, tax collectors, animals, mothers-in-law, automatons, and so forth, are produced by well-established selective operators. The comic effect of the child wearing a bowler hat, of Donald Duck as a commando, of impersonation and imitation in general, is due to the fact that in each of these cases two familiar behaviour patterns appear bisociated in the same person. The reader acquainted with Bergson's theory will have realized by now that his explanation of the comic as a contrast between man as a spiritual being and man as a machine is merely one of the numerous possible variations of the bisociation of two behaviour patterns, or of any two operative fields.

The operative fields of arithmetic, algebra, and infinitesimal calculus have mathematical symbols as members, and selective operators which represent rules of increasing complexity. We may visualize the selective operator as a kind of four-dimensional filter mechanism which admits only certain forms of symbols in a certain order, like the combination locks on safes. We then see how more and more

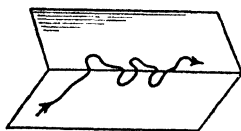
complex operators can be built up by superimposing more subtle filter systems on the original one. Thus the operators of verbal fields in general are the laws of syntax and grammar. Superimposed on these may be the rules of logic, or of axiomatic doctrines (religion), or of certain codes of convention (cant), and/or the schemata of particular types of professional reasoning. Each of these compound selective operators produces a different type of associative matrix, forcing the subject to think "in terms of" history or psychology or ethics—just as the knight, the rook, and the bishop each have to proceed according to different movement patterns. This matrix may also be one of phonetic *form*: the selective operator may admit only words that conform to certain metric patterns, or which rhyme.

In classic associationism the successive states of consciousness were visualized in linear form, as chains or trains of thought. But a linear form of representation cannot express the different functional rules which govern the progress of the stream in different fields, for example, those of science and religion. In our diagrams the two separate fields were represented by two intersecting lines; a more adequate visual representation is to indicate the two fields by different *planes* (we often speak metaphorically of "levels" or "planes" of thought); their respective slant in space will symbolize the different functional organization of the fields. The modified diagram will then look like this:



We see at once that the introduction of the concept of the operative field permits us not only to chart the intellectual geometry of the type of comic discussed so far—that is, the joke with a single point which ends when the narrative meets the flash, but also to account for the sustained type of humour with repeated bisociative points of the same type (comedy, comic epic, prolonged impersonification or disguise). In these cases the narrative moves permanently close to, or along, the line of intersection of the two fields (see below). The application of this schema to the various types of humour will be found in Chapters VI and VII.

The actual paths of the stream of consciousness *within a given field* is determined by the interaction of stimuli from the external and internal environment, which may be called the "purpose" of the process. But the same stimulus will elicit entirely different responses of thought and behaviour according to what kind of operative field the nervous system is attuned to at the time.



PHYSIOLOGICAL ASPECTS OF THE PRESENT THEORY: AN ANTICIPATORY DIGRESSION

We have introduced the concept of the operative field as an *ad hoc* hypothesis to account for certain phenomena of the comic which cannot be explained in terms of linear association trains. But the intimate connection between witticism in the comic and "wit" in the original sense, between the comic and other forms of the higher mental functions, lead us to expect that these *ad hoc* hypotheses will prove to be of a more general usefulness. These wider implications will emerge gradually in later sections. We shall see that the characteristic feature of any original creative process, whether in art or in discovery, can be expressed in terms of bisociative processes between operative fields of various kinds; we shall further see how the concept of the operative field works when applied to sensory and motor processes: for example, how the Gestalt qualities in visual or acoustic perception appear as particular cases (selective operators of a sensory nature) contained in laws of a more general order. At present we must confine our discussion to verbal fields in which the selective operator appears as a manipulator of words.

For the time being we shall also have to regard the novel terms introduced in this chapter merely as descriptive metaphors, a new kind of jargon, like Freud's "censor," Jung's "anima and animus," or Köhler's "Gestalt." Such descriptive metaphors serve a useful purpose if they permit adequate systematizations of the observable facts; and if "bisociative psychology" yields an adequate description

of the basic processes common to humour, art, and discovery, the introduction of the new terms will be justified. But in the last resort the validity of metaphorical symbols like "super-ego" will depend on the demonstration or refutation by the neuro-physiologist of the existence of corresponding mechanisms in the central nervous system. For, to quote Lashley, "the convergence and coalescence of physiology and psychology must be the practical goal of both sciences";² and though this goal is still in the distant future, the point of coalescence alone will provide the final criteria by which to judge the various contemporary schools of psychology. The above considerations may justify the anticipatory remark that the concept of the operative field was introduced with one eye on psychology, the other on neurology. It is derived from the analysis of psychological phenomena, but rests at the same time on a concrete neuro-physiological conception—the so-called "selective resonance" hypothesis of neural functioning in the central cortical areas, as suggested by Jacques Loeb, Bleuler, Lashley, Strauss, Adrian, and others. The present theory, though essentially psychological, would lose all claim to validity if its neurological implications were refuted; in the opposite case it might serve as a tentative link between physiology and the psychology of creative mental processes.

After this anticipatory digression, we will now introduce some further aspects of the operative field.

EXPLICIT AND IMPLICIT OPERATORS

A field is defined by its selective operator. We have given examples of fields of various kinds; in each case the field operator represents a different selective law, a different rule for manipulating ideas and their verbal symbols. In the case of the game "towns starting with *L*," this rule is relatively simple; in other cases it is extremely complicated. In such complex high-level mental fields the selective operator is an *aggregate* of many part operators of a lower order, and the

² Lashley, K. S., "Coalescence of Neurology and Psychology," *Proc. Am. Phil. Soc.*, 1941, 84

field itself the product of a long process of integration, which will be discussed in Volume Two. Now it is a characteristic fact that some of these operators are *explicitly*, others *implicitly* given. Thus the rule "initial *L*" is an explicit rule, and so are the rules for the manipulation of mathematical symbols; but whenever one is engaged in a trivial conversation in one's native tongue, the laws of syntax and grammar operate on an unconscious level. So do certain implicit rules of reasoning; causality, physical laws, and the whole array of axioms and assumptions which are "taken for granted" and are not present in consciousness. When we discuss a phenomenon, for example, Hitler's hysterical disposition, "in terms of" history, or "in terms of" medical pathology, we are, when cornered, probably just able to give a verbal definition, or at least an approximate formulation, of the nature of the field operator which makes us select from the same starting point, one series of associations rather than the other. But the uneducated person, while he talks and reasons correctly by and large, will be unable to give a verbal account of the selective operations of grammar or logic going on in his mind which enable him to do so. In other words, *the selective operator (or some of its components) which coordinates and systematizes activity usually belongs to a lower level of consciousness than that activity itself.*

This phenomenon should not be confused with the unconscious distortion of reasoning by repressed emotions or similar Freudian mechanisms. We are not concerned here with neurotic and affective processes, but with the functioning of normal, neutral, unemotive thought. Nor is the phrase in italics meant to refer merely to superstitions and irrational beliefs, or to imply any distinction between "rational" and "irrational" thought. Psychoanalysis has focused our attention so much on the specifically affective aspects of mental processes that the more general problem of thinking itself has been obscured or forgotten. It is generally realized that the processes which regulate *visceral* activities or acquired *manual* skill are often impossible to describe verbally. But it is not generally realized that the same relation prevails between the *mental* skill of reasoning in

specific terms and the field operator which defines these terms, without being verbally definable itself.³

We learn to talk and reason before we learn, if we ever do learn, the rules of grammar and logic—which, nevertheless, are the implicit guides of language and thought—as a young gypsy learns to play the fiddle without knowing the names of the strings or musical notation. The manifold fields or schemata of mental operations are selective matrices of acquired *habits*. They are, needless to say, not linear chains of conditioned reflexes but integrated habit patterns of extreme plasticity and adaptability. Associative routine reasoning in the familiar terms of a given field is the application of empirically acquired manipulative skill in the mental sphere. The implicit rules of these habit manipulations can usually only be made explicit under the analytical microscope of the logician or the semanticist.

This is one of the main reasons why the secret of the comic has resisted so many onslaughts in the course of the centuries. The essence of the comic is the bisociation of two operative fields in a junctional concept which is a member of both; it vibrates simultaneously on two different wave lengths, as it were. But frequently the selective operators of the two fields are partly, or entirely, implicit and un verbalized; hence it is extremely difficult to sort them out, or rather to realize that there *are* two different patterns entangled, which have to be sorted out.

With the pun, or the comic of disguise, this is still relatively easy, but even in a primitive joke, like the one about the medal, the listener only notices that there is “something funny” about the reasoning, without being able to tell what it is. As the field operators, that is, the respective implications of both narrative and flash, are mostly on a lower level of consciousness than the awareness of the story itself, their clash is merely noticed as a disturbance of the normal flow of association, without conscious awareness of what the disturbance consists. The virtue of the higher forms of the comic—

³ The bearing of this fact on the processes of abstraction, symbolization, intuition, and of the integration of lower into higher fields will be discussed in Volume Two.

irony, satire, caricature—lies, as we shall see, in just this fact that the bisociative clash disrupts the fields of implicit habits of thought; it exposes to ridicule conventions which were taken for granted; it shows up in the sharp, pitiless light of an alien field what we have unquestioningly accepted in the dim routine of habit.

"MULTIPLE ATTUNEMENT" OF TRACES

All thinking is based on, or influenced by, the traces of past experience; these traces are activated by patterns of sensory stimuli (recognition) and/or by central processes (associative memory, reproduction). Without these traces of past experience, the incoming sensations would be meaningless, and for our present context we may regard (within the limits of permissible oversimplification) the members of operative fields as active memory traces—regardless of whether these present themselves as the auditory-vocal images of words, as visual or motor-kinaesthetic images, and so forth. Even when reading a book or listening to a story, the members of the field are not the sensory shapes of letters and sounds, but the active traces which enable us to recognize these forms, and the associative ripples which accompany the progress of the narrative.

Let us now revert to our first example and discuss what happens when in the game "towns starting with *L*" the name London is fished out of the memory. A second before, this name was not present in the subject's consciousness, but it was contained in his cortical organization as a latent, auditory-vocal trace. This trace has been activated, set into vibration, by the subject's subvocal whispering of the initial letter or syllable, used as a tuning fork as it were. But the trace could have been activated equally well by a number of other tuning forks, for example, the word "Cockney," or "Blitz," or the sight of a picture postcard. And vice versa: once the trace has become active, it may in turn activate the traces of any of the words or images just mentioned, or a number of others. If we visualize the trace as a kind of vibration circuit like a radio set, then it is a set which will respond to a great number of different attunements, and will be equally capable of sending out impulses on a great number

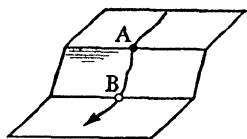
of wave lengths. We shall call this phenomenon the *multiple attunement of traces*; how a trace *acquires* these different tunings does not concern us at present.

Now if we ask a person in a free-association test to name the first idea that enters his head when he hears the word "London," it is unlikely that he will answer, "It is a word starting with *L*." The name of each town or person or smell has its favourite associative connections, and it may also have associations regarded as taboo. In between these two extremes ranges the scale of the associative preferences of various attunements of the trace. This *hierarchy of preferences* is caused by several factors which have operated in the individual's past. One factor is the facilitation of certain attunements by repetition and the weakening of others by lack of repetition. Another factor is emotional facilitation (affective thinking) and emotional inhibition (repression), which may vary at different times and thus lead to rearrangements in the hierarchy of preferences.

We saw that the quality "initial *L*" is one of the many tunings to which the trace "London" will respond. Once the trace has come to life it will automatically tend to conjure up new associations. Normally, the first association would probably be the subject's last visit to London, or a girl friend living there. However, the subject has to stick to the game; he has to find the next town starting with *L* according to the rule of the operative field, and this will force the impulse to proceed from "London," not according to the favourite wave length, but according to the wave length prescribed by the selective operator. In other words, the trace "London" functions at present as a member of a certain operative field; at other times, by virtue of its multiple attunements, it will function on a different wave length, as a member of a different field. When thinking is organized and coherent, the members of the operative field are compelled to "vibrate," not in their favourite (affective or habit-preferred) pitch, but according to the specific pitch of the field vector. The effort of concentrating in the process of reasoning according to the laws of a highly complex field is equivalent to the energy needed to inhibit the "natural" associative inclinations of its members.

When concentration flags, the train of consciousness will derail, skipping from one field to another under the influence of some previously inhibited associative connection. In purposive, cortically dominated thinking the flow of ideas adheres to the given field; in dreaming and daydreaming the flow drifts from one field to a second and a third.

Each time the train of consciousness changes fields, some junctional concept (*A*, *B*) serves as a pivot; such bisociated concepts "receive" on one wave length as it were, and "emit" on another. Thus, I may think of the dynastic history of England, and when I reach Richard III's "My kingdom for a horse!" my thoughts may trail off to the Grand National and my chance of backing a winner. The selective operator of the first field was that of "history"; that is, that only such associations are permitted as proceed in a temporal sequence, according to geographical and ethnic groupings, refer to events of public importance, and so forth. The operator of the second field is an aggregate of quite different components; the important factor "public interest" is absent, the factor "private concern" present, and so on.



We saw that each operative field inhibits the nonspecific associative tendencies of its members, while the latter—the emotive or preferential-habit attunements—tend to shift the focus of consciousness onto another field. This is achieved by changing the associative pitch of the junctional concept, which serves as a pivot, that is, by a shift from one aspect of the same thing to another aspect of it. A hungry little boy doing his homework and engaged on a problem about "John has *X* apples, Jack has *Y* apples," and so forth, may cease to bother about how many apples Jack has and drift into a gastronomic reverie. The fact that apples happen to be edible was as adventitious in the context of the first field as the fact that they can be counted is to the second. The disruptive tendency often achieves its aim by fastening awareness onto some aspect of a member which is unimportant and adventitious to the first field, but

specific to the second. This phenomenon of "shift of emphasis" or "displacement" is more or less pronounced in all bisociative processes, and we are no longer surprised therefore to find it shared by the joke, the drifting reverie, the manic flight of ideas, and the dream. Frequently in the dream and in other states where the affective tendencies are strong and the coherence of the higher fields weakened, the former may use as disruptive levers such subordinate aspects of a member of the field as in the waking state are never noticed at all, for example, purely accidental similarities of sound. Hence the characteristic recurrence of *puns* in dreaming and in certain manic states. Similarities of *form* detached from function and other primitive associative preferences may equally serve as pivots—whence the peculiar symbolism of the dream. A broomstick serving as a phallic symbol is, after all, but an *optical pun*: one visual form bisociated with two functional contexts.

The continuous change of operative fields in dreaming, and the corresponding frequency of bisociated images, further explains the characteristic "overdetermination" of dream symbols.

BISOCIATIVE PROCESSES IN HUMOUR, ART AND DISCOVERY

Any two operative fields can be used to construct a comic effect if invested with an emotive charge under certain conditions, which are discussed in the next chapter. The first example of a simple field given in this chapter was "towns starting with *L*." To construct a joke, we may select any second field at random, for example, "medicine": "She has found a wonderful new doctor who discovered that her real trouble was that she was allergic to living in any place starting with *L*." Or, "politics": "Mr. Spender, the poet, suggested at a recent meeting of UNESCO that as a first step towards world government, customs unions should be established between all countries whose names alliterate, for example, Liberia, Lapland, and Luxembourg." Our next example was chess, while the following section dealt with "codes of behaviour"; bisociating these two, we get, for example, the chess champion running after a bus on a cobbled street in the skip-jump fashion of the knight on

the board. Our last example was the little boy at his mathematical homework. Let him solve the problem "How many apples has Jack?" by a short " $X = 0$; he's eaten them all." And so on, *ad nauseam* and *in finitum*. The bisociation of one form with two functional contexts, which is one of the mechanisms of the dream, also provides the comic effects of the optical pun or comic comparison: a nose like a cucumber, fingers like sausages, and so forth. A further important type of comic bisociation occurs between operative fields where one operator is of a perceptual, the other of a conceptual nature; it provides one of the varieties of the caricature. The nose is a favourite prey of the caricaturist because its prominence turns it easily into an object of the visual perception of form detached from function—into a nose *an Sich*, as Kant would have said.

When a person reads a book or listens to a story, his thinking is guided by a continuous succession of stimuli, the narrative. It evokes images, memories, associations in the subject's mind, which follow in the wake of the narrative like the ripples which a motorboat causes on a pond. The total pattern of these ripples is the operative field. It is defined on the one hand by the quality of the narrative: a steamer, a yacht, and a motorboat all cause different patterns of ripples; and on the other hand by the quality of the medium (the subject's mentality): whether the pond is filled with water or quicksilver or jam. Some of the ripples will move even quicker than the boat, producing anticipation, and they will spread not only along the surface, but also beneath it, in the dimly transparent preconscious and the deeper subconscious regions of the pond. The narrative focuses the subject's attention on its course so that he cannot follow the ripples' way across the pond, but it is their presence all round the horizon of awareness which defines the pattern of the operative field, and provides resonance, colour, and depth, the feeling-tone and atmosphere of the story.⁴

⁴ If we follow up the physical implications of the metaphor, we find that the ripples will after a while form a characteristic interference pattern of standing waves which symbolizes the organization of the field. After this passage was written, I found that Lashley explains the physiology of memory traces as a charac-

When we watch a thriller film, a shadow on the wall or the slow turning of a door handle from outside is perceived not at its neutral face value, but as uncanny or threatening; the incoming impulses have been automatically attuned to the pitch of the field. Similarly, when we are discussing a subject in terms of physics or history, we have tuned our mind so as to select only those aspects and associative connections which are defined by the selective operator of the field. It is this homogeneity of the operative field which makes systematic, organized reasoning possible—as opposed to “drift-thinking” in its various forms. On the other hand, reasoning within the framework of any given field has its obvious limitations. It is the exercise of a manipulative habit, a mental skill, which can only solve tasks of a kind already encountered in past experience. It is not capable of original, creative achievements. Implicit component operators of the field—unconscious axioms, conventional beliefs, traditional assumptions—are taken for granted and, as the history of philosophy and science show, may remain taken for granted for centuries on end; in fact as long as reasoning remains confined to the field in question and no bisociative clash occurs to expose to conscious scrutiny the nature of the selective operator of the field.

This last consideration already foreshadows a different, and more important, function of the bisociative process than those discussed so far. The bisociative disruption of a field may serve merely the purposes of a comic effect; it may serve the affective tendency of thought to drift from field to field along junctional links of least resistance; but it may, on the contrary, signify a revolutionary departure from traditional patterns of thought, a creative synthesis between two fields, between hitherto unconnected aspects of the phenomenal world: in other words it may enter the services of *invention and discovery*.

teristic interference pattern of neural circuits (*Biological Symposia*, Vol. 7, Lancaster, Pa., 1942). The correspondence between the above metaphor and Lashley's description is no coincidence but is due to the fact, already mentioned, that the theory of the operative field was worked out with one eye on the theory of selective resonance in neurology. The question will be dealt with in detail in Vol. Two.

Up to now we have considered the bisociative process merely from the "consumer's" angle, as it were; that is, from the standpoint of the listener or reader or spectator of the joke. But from the point of view of the *producer* of the comic effect, each witticism is an "invention" or "discovery." The flash in the diagram of the joke which the consumer enjoys mirrors a flash of inspiration in the producer's mind; the creation of the comic is merely a subcategory of original creative activity in general, based, as will be seen, on the same bisociative geometry. Every type of comic bisociation discussed so far we shall encounter again, with a different emotional dynamics but the same cognitive pattern—that is, involving identical pairs of fields—in the chapters dealing with creative activity in science and art: the pun (one sound with two meaning-contexts) as rhyme and assonance in poetry; the Bergsonian bisociation of man = spirit and man = machine as the starting point of the biological sciences; the bisociation of form and function as the fundament of all visual arts. The bisociative treatment of a phenomenon J habitually regarded as member of one field F_1 , in terms of another field F_2 when its affinities with F_2 have hitherto been regarded as adventitious, or have passed unnoticed, is, as we shall see, the basic pattern of all original discoveries—whether J is represented by the rising water level in Archimedes' bath, the apple which fell in Newton's garden, or Darwin's chance observations on domestic breeding.

If this last remark appears at present rather obscure, it will become clearer in the course of Part Three, dealing with the type of bisociative process which results in original discovery, the "eureka process." At present we have to complete our examination of the comic; should the reader resent the repeated anticipatory excursions in this chapter, he may find some excuse in the consideration that this somewhat painful vivisection of the comic, in which he is asked to participate, is not an end in itself, but a means to uncover the basic pattern which unites the apparently so heterogeneous creative mental activities of humour, art and discovery.

V

The Emotional Dynamics of the Comic

WE STARTED our discussion of the comic by distinguishing between its cognitive geometry and emotive charge. We found it convenient to visualize the cognitive geometry of a joke as a pattern of water pipes, and to compare its emotional charge to the liquid which flows through the pipes. So far we have only dealt with the intellectual geometry of the comic—the topography of the pipes. We now have to turn our attention to the quality of the liquid circulating in them, and to the emotional dynamics of its discharge in the laughter reflex.

THE QUALITY OF THE EMOTIONAL CHARGE

The dominant emotive quality of a joke, caricature, or humorous narrative may be malicious or sexual or scatological, or devoid of any obvious feeling-colour; usually it is a blend of various components. But all these emotive combinations have one quality in common, which varies in intensity according to the type of the comic stimulus, but whose presence is indispensable to the comic effect. This common denominator is usually a very faint impulse of aggression or defence manifested as malice, derision, self-assertion, or merely as an absence of sympathy with the victim of the joke—a “momentary anaesthesia of the heart,” as Bergson puts it.¹ Sometimes this element is so faint that only skilled analysis can detect it, like the presence of salt in a well-prepared dish which, however, would be tasteless without it. It is this element of aggression, of

¹ The aggressive and defensive attitudes are treated here, for reasons which will appear later, as gradations on one reaction gradient (fight-flight).

detached malice, which turns the effect of pathos into bathos, tragedy into comedy; and vice versa, the emotive factor which turns Don Quixote from a comic into a tragic figure is aggression's opposite, sympathetic identification. The hunchback, the asthmatic, the man who slips on a banana skin, the obese, the stutterer, the cuckold are comic or tragic figures according to the different emotional attitudes which we may have towards identical situations—i.e., according to the alternative emotional charges of the same cognitive pattern.

In civilized humour the aggressive component is diluted or sublimated and frequently unconscious. But this is the result of a long humanitarian evolution; in the types of comic stimuli most effective with children and people of primitive mentality, aggressive self-assertion is very much in evidence, and it accordingly plays a dominant part in earlier forms and theories of the comic. "As laughter emerges with men from the mists of antiquity it seems to hold a dagger in its hand. There is enough brutal triumph, enough contempt, enough striking down from superiority in the records of antiquity and its estimates of laughter to presume that original laughter may have been wholly animosity."² In the Old Testament, according to Mitchell,³ there are twenty-nine references to laughter, out of which thirteen are linked with scorn, derision, mocking, or contempt, and only two are "born out of a joyful and merry heart." A survey conducted in a large primary public school in America of the stimuli that caused mirth in the pupils between the ages of eight and fifteen, led to the conclusion that "mortification or discomfort or hoaxing of others very readily caused laughter, while a witty or funny remark often passed unnoticed."

Among the numerous theories of laughter that have been suggested since Aristotle, the so-called "theory of degradation" appears as the most persistent; variations of it range from Plato to Bain. For Aristotle himself laughter was closely linked with ugliness and debasement; for Cicero "the province of the ridiculous . . . lies in a certain baseness and deformity"; for Descartes laughter is a mani-

² Gregory, J. C., *op. cit.*

³ Quoted from Gregory.

festation of joy, but of a joy "mixed with surprise or hate or sometimes with both"; in Francis Bacon's list of laughable objects, the first place is taken by "deformity." The essence of the "theory of degradation" is contained in the famous passage in Hobbes's *Leviathan*, according to which:

The passion of laughter is nothing else but sudden glory arising from a sudden conception of some eminency in ourselves, by comparison with the infirmity of others, or with our own formerly.

Bain follows on the whole the same theory: "Not in physical effects alone, but in everything where a man can achieve a stroke of superiority, in surpassing or discomfiting a rival, is the disposition to laughter apparent." For Bergson laughter is the corrective punishment inflicted by society upon the unsocial individual: "In laughter we always find an unavowed intention to humiliate and consequently to correct our neighbor, if not in his will at least in his deed." Max Beerbohm finds "two elements in the public's humour: delight in suffering, contempt for the unfamiliar." McDougall, the most recent of the academic psychologists to have tackled the problem of the comic, believes that "laughter has been evolved in the human race as an antidote to sympathy, a protective reaction shielding us from the depressive influence of the short-comings of our fellow-men." Gregory sums up the process of what he calls "the humanisation of laughter" by the sentence: "According to Hobbes, men laugh when they have too little sympathy; according to McDougall, they laugh to avoid having too much."

Without identifying ourselves with any of the above theories, this rapid historical survey may suffice to convince us that at all times a component of malice, of debasement of the other fellow, and of aggressive-defensive self-assertion, has been recognized in laughter—a tendency diametrically opposed to sympathy, helpfulness, and identification of the self with others. Now most of our emotional reactions to complex stimuli are blends of various, and partly contradictory, elements; we may laugh at a person despite simultaneous stirrings of tenderness or sympathy, or we may be deeply moved by

a person's predicament, without being able to suppress a smile at its comic aspect. But this very ambivalence of our reactions proves that there are opposite tendencies at work: the component of aggression tending to produce the comic, that of sympathy the tragic type of response. The reasons for this will be seen later.

To sum up: whatever the composition of the emotional charge of the narrative, it will only produce comic effects if the aggressive component, however sublimated, dominates the opposite tendency. We shall see later that this opposite tendency of sympathetic identification, or "self-transcendence" as opposed to "self-assertion," is dominant in the emotional charge of the tragic narrative, and that stimuli of identical cognitive pattern will give rise to tragedy or comedy according to which emotive tendency dominates the pattern.

So much, for the time being, about the quality of the emotional charge of the comic stimulus. As to its quantity, obviously only emotions below a certain upper ceiling of intensity can be converted into and discharged by laughter; violent emotions are "no joking matter." The whole mechanism will become clearer during our discussion of the nervous dynamics of the process, to which we will turn presently.

THE DYNAMICS OF DISCHARGE

Laughter is habitually called "relieving" or "liberating"; it is a process which discharges or "explodes" emotional tension. This tension is created and carried by the narrative: it accompanies the ideational process up to the point where the latter abruptly changes trains from narrative to flash, from one field to another with a totally different associative and emotive climate. At this juncture the emotion, which had been carried by the narrative, suddenly loses the ground under its feet and is left hanging in the air; it collapses like a rider whose horse has been shot dead under him; it gushes out like the liquid from the punctured pipe.

Turning from metaphor to reality, we may regard the emotional charge of the punctured narrative as an amount of energy which, prevented from following its normal course, has to be disposed of in some other way. We assume that laughter is a mechanism for

the disposal of those energies which have suddenly become redundant by separation from their thought-context. The redundant charge is detonated, and the delight in laughing is one of the many variants of catharsis or de-tension. Now de-tension is the prototype of all pleasurable sensation, regardless of whether the tension was originated by hunger, sex, or fear. But in these cases the process of relief is congenial to the tension: we are liberated from the tension by a specific consummatory act of fulfilment. In laughter, however, catharsis is not congenial to the tension, and does not consist in the satisfaction of any specific action-impulse, but in the sudden, purposeless explosion of the excitement. The tension is not consummated, but annihilated in aimless muscular activity. Laughter explodes anger, greed, envy; it punctures any instinctual drive; it makes a man equally unable to kill or to copulate. The very aimlessness of the motor activities of laughter makes it appear as a symbolic act of liberation from the fetters of biological purpose. It is a luxury reflex which emerges at the evolutionary stage where man has become able to afford to fritter away part of his energies—when existence is no longer a constant struggle.

We now have to examine more closely the physiological aspects of this process. Herbert Spencer⁴ was the first to suggest that laughter was a discharge mechanism for "nervous energy." He starts with the proposition: "Nervous energy always *tends* to beget muscular motion; and when it rises to a certain intensity always does beget it. . . . Emotions and sensations tend to generate bodily movements, and . . . the movements are violent in proportion as the emotions or sensations are intense." Hence, "when consciousness is unawares transferred from great things to small," the "liberated nerve force" will expend itself along the channels of least resistance, which are the muscular movements of laughter.

The details of Spencer's theory have become obsolete through later developments in neurology, but its basic thesis that "emotion tends to beget bodily motion" has not only been confirmed by

⁴ Spencer, H., "The Physiology of Laughter."

neurology and endocrinology, but is regarded today as a commonplace. So much so, that it is generally overlooked that this galvanizing effect is true for only one category of emotions—the hunger-fear-rage, or defensive-offensive type, which works through the sympathico-adrenal system. We shall see later on that other emotional states—e.g., mystic contemplation or grief—tend on the contrary towards tranquillity, relaxation, and bodily passivity. But for the time being we can neglect this distinction, as we are now only concerned with the self-assertive, aggressive-defensive type of impulse which provides the main emotional charge of the comic. And for these emotions it is certainly true that they tend to beget bodily movements, both muscular and visceral.

Now Spencer's theory (which Freud later incorporated in his own) contains an implicit assumption, a hidden axiom, shared by many other theories of the psychology of emotions. It is the assumption that *emotional processes have a greater inertia than cognitive processes*. When Spencer talks of "quantities of feeling" which discharge themselves in laughter "when consciousness is unawares transferred from great things to small," he seems to take it for granted that the "feeling" is, so to speak, too massive, inert, or clumsy to follow the swift, lithe movements of conscious thought, and is, in consequence, spilled into the gutter of muscular channels as a glass of water is spilled by a gesticulating hand. In other passages, however, Spencer treats "ideas" and "feelings" as practically synonymous, so that it is quite incomprehensible why, "when consciousness is transferred from great things to small," feeling should not also be transferred. After all, we may feel as strongly about small, trivial things as about great things.

PHYSIOLOGY OF THOUGHT AND EMOTION

It is probably this confusion of "thought" and "feeling" which prevented Spencer from realizing the implications of his own theory. But to the best of my knowledge no school of psychology, not even the Freudian, has explicitly stated this tacit assumption that emotions have a much greater inertia or mass momentum in the direct,

physical sense than the processes of formal thought. In the present theory of the comic, this fact plays an important part. For when we said that the emotional charge of the narrative is disposed of in the discharge reflex of laughter, we implied that emotion is not suddenly transferable from the field of the narrative to that of the flash, whereas the thought is. Our understanding does jump from the first field to the second, whereas our emotion, incapable of performing the sudden jump, is spilled. This difference in behaviour implies that emotion tends to persist in the direction of a straight line, like a bull, whereas thought can dance about like a matador; in other words, that emotion has a greater mass momentum.⁵

This implication is fully borne out by recent developments in neurophysiology, particularly by the pioneer work of Cannon and his school. The bodily changes produced by emotion through the sympathico-adrenal system involve an incomparably heavier machinery than purely cognitive processes in the cortex. Once this machinery is set in motion, it cannot be called off quickly nor change its "direction" at short notice. The chemical and visceral states tend to persist. Common observation bears this out at every instance. It takes time to "talk a person out of a mood," even if he is theoretically convinced of the correctness of our reasoning. Desire survives the severest criticism of its object; anger persists, and fear shows physical aftereffects, even when their cause has been removed. If we could change our moods as quickly as we jump from one thought to another, we would be acrobats of emotion. The experience of the greater persistence of feeling compared with understanding is, in fact, so common that we take it for granted without seeing the problem and its implications. But prior to gaining insight into the functions of the sympathetic nervous system and the adrenal glands, it was not at all obvious why this should be so—why, for instance, the civilized adult's moods should not have the swift weathercock

⁵ The reader is reminded that throughout this chapter the term "emotion" refers to the aggressive-defensive type of emotion only, but is used for simplicity's sake without the cumbersome qualifying adjectives.

adaptability of the small child's, and his cognitive processes be childishly stubborn' and single-minded. A fuller understanding of our theory of the comic requires therefore a few summary remarks about the neurophysiological differences between thought and emotion.

Behaviour at any given moment is the resultant of a complex nervous process which operates at various levels of the nervous system, from the spinal cord to the pallial cortex. If we watch a brute beating a child, the formal, descriptive aspect of the spectacle will be registered by the cortex, while our emotive reaction to it will be centered on the older level of the interbrain, in the hypothalamus. The latter controls the autonomic nervous system, and through it effects those visceral and glandular reactions which in their ensemble express what we call our "emotive indignation." Generally speaking, the formal, discriminative, reproductive processes, controlled by complex rules, which we call "thinking," are the latest evolutionary acquirement and take place in the newest part of the brain, the rind of its two hemispheric roofs, or pallial cortex; while pleasure and pain, affect and emotion, are centered in the older interbrain, the thalamic-hypothalamic level.

The two levels are in constant interaction and, except for the relatively rare moments when civilized man is at peace with himself, pull in different directions. The cortex represents reason and restraint, the thalamic level the tendency to blind, impulsive, affective behaviour. Accordingly, when the thalamic level is partly or entirely released from cortical inhibition through injury to mediating nerve tracts, the patient will display various forms of emotional overactivity. Bard's ⁶ decorticated cats displayed the symptoms of violent rage when touched; Brickner's ⁷ patient whose frontal lobes had been removed, displayed an infantile lack of inhibition. Head's ⁸ patients

⁶ Bard, P., "Central Nervous Mechanisms for Emotional Behavior Patterns in Animals," *Research Publications of the Association for Nervous and Mental Diseases* (ARNMD), 1939, XIX.

⁷ Brickner, R. M., *The Intellectual Functions of the Frontal Lobes* (New York, 1936).

⁸ Head, Sir H., *Studies in Neurology* (London, 1920).

with one-sided lesions in the thalamic area (thalamic syndromes) showed excessive reactions to stimuli on the corresponding half of the body: pin-pricks, pressure, loud sounds, excessive heat and cold caused intolerable pain or distress when applied to the abnormal side. One patient reacted to mournful tunes with a "horrid feeling" in the affected side; the leg on this side was screwed up and started to shake. Reactions to pleasurable stimuli are equally excessive. A patient with a left-sided thalamic syndrome developed amorous cravings which were confined to the corresponding right half of the body: "I crave to place my right hand on the soft skin of a woman. It's my right hand that wants the consolation. I seem to crave for sympathy on my right side. . . . My right hand seems to be more artistic." One patient found a hot-water bottle placed against the foot on the affected side pleasant and soothing, but did not discover that it was *hot* until he touched it with his normal hand. Thus the affect-tone was intact and even exaggerated, while the discriminative, formal aspect of the perception was lost.

The duality of the cortex and thalamus,⁹ of consciously reasoned and emotive-automatic behaviour, is particularly striking in pathological phenomena affecting muscular movements under dual control. In certain forms of hemiplegia (one-sided paralysis) where the cortical motor tracts are cut and the thalamus remains intact, the patient is unable to move the paralysed half of the face by a *voluntary* effort, while under the influence of a sudden emotion the muscles of both halves spring symmetrically into action. When smiling conventionally (cortically), such patients can only do it with one half of their face; when laughing spontaneously (thalamically), they will do it with both (Cannon).¹⁰ And vice versa: when the cortical motor tracts are intact but the thalamus is unilaterally injured, the patient can move both sides of his face symmetrically *at will*; but when he spontaneously laughs, or grimaces in pain, one side of the

⁹ "Thalamus" is used here as a convenient shorthand sign for the whole diencephalon, i.e. including the hypothalamus, corpus striatum, etc.

¹⁰ Cannon, W. B., *Bodily Changes in Pain, Hunger, Fear and Rage*, 2nd Ed. (New York, 1929).

face remains motionless.¹¹ Finally, under certain specific forms of hypothalamic release, uncontrollable fits of laughter and crying may result, lasting for hours, but unaccompanied by any consciousness of amusement or grief; here the discharge reflex serves as a gutter for emotional charges unconnected with any cognitive state.

These examples may suffice to show that our basic distinction between "intellectual geometry" and "emotive charge" was not arbitrary, but pressed upon us both from the psychological and neurological points of view. We can now turn to the physiological foundations of the proposition that emotive processes have a greater inertia or mass momentum than cognitive processes.

The locus of the cognitive aspect of behaviour is the pallial cortex; its essence is the selective distribution, integration, and retransmission of nervous impulses; all evidence tends to show that the quantities of physical and chemical energy involved in these processes are very small compared to muscular and visceral activity. The machinery of emotion is of a quite different order of magnitude. Once the autonomic centres of the hypothalamus are emotively roused by appropriate impulses of peripheral or central origin, this machinery is thrown into activity with the result that almost the whole body is put into a state of readiness for emergency. The mediators of this general mobilization are the sympathetic branch of the autonomic nervous system acting on the viscera, and the chemical agency of the secretion of the superarenals, adrenin, which provides the blood stream with extra fuel for the muscular exertions of fight or flight. Without going into details, we may summarize with Cannon¹² the mass action of the sympathetic nervous system as follows:

Acceleration of the heart, contraction of the arterioles [to facilitate the coagulation of blood in case of injury], dilation of bronchioles [increased oxygen supply], increase of blood-sugar [as muscle fuel for emergency action], inhibition of activity of the digestive glands, inhibition of gastro-intestinal peristalsis [to maintain energy-supply], sweating [to dispose of excess heat of fight or flight], discharge of adrenin [all-round energizing influence], widening of the pupils and

¹¹ *Ibid.*

¹² *Ibid.*

erection of the hairs. These changes are seen in great excitement under any circumstances. At the same time, the adrenin' set free in pain and in fear and rage would put the muscles of the body unqualifiedly at the disposal of the nervous system; the difficulty which nerve impulses might [otherwise] have in calling the muscles into full activity would be practically abolished; and this provision, along with the abundance of energy supplying sugar newly flushed into the circulation would give to the animal . . . the best possible conditions for putting forth supreme muscular effort.

Hence the extraordinary feats of force which people accomplish in panic and rage; hence also, as a consequence of the lowering of the threshold of muscle excitation, the tendency to violent movement, to "work off," or at least "shake off," the physiological effects of emotion.

THE DISSOCIATION OF THOUGHT AND EMOTION

It may be objected that the faint emotional charge of the comic stimulus, the slight malice or sexual aggression which it carries, cannot be compared to the violent emotions and states of emergency which bring the adreno-sympathetic mechanism into play. But this objection ignores the fundamental anachronism of all automatic reactions of the organism to stimuli which carry an echo, however faint, of situations which were an acute menace in the dark past of the species. Our physiological contrivances lag behind our social conditions by many millennia. We develop gooseflesh at a screeching sound—a relic of the bristling of protective hair against the attack of some screech-voiced, beastly enemy. We sweat before an examination—a temperature-regulating device in view of the excessive heat our bodies might develop in the impending struggle with the examiner and/or the panicky flight from him. One might call this atavism of our autonomic reactions, stressed, among others, by Darwin, James, Crile, and Cannon, the "overstatements by the body." ¹³

¹³ Nineteenth century authors occasionally produced absurd speculations to illustrate the point under discussion. Thus, according to Spencer, "the distension of the nostrils in anger is . . . an echo of the way in which our ancestors had to breathe when, during combat, their mouth was filled up by a part of an antagonist's body that had been seized."

We can sum up the foregoing section by saying that the sympathico-adrenal system acts as a kind of amplifying resonance body to the cortical strings of thought. The emotive vibration of this resonance body, like that of the wooden sound boxes of the violin and piano, has more volume and "massivity" than the vibrations of the strings. Normally, the resonance body harmoniously amplifies the strings—emotion gives depth and colour and warmth to thought. But if we play a quick, humorous scherzo with full pedal, the thundering resonance-body is unable to follow the modulations of the chords; emotion lags behind thought, thought and feeling have become dissociated. When attention is abruptly transferred from the narrative to the flash, thought turns a somersault which feeling is unable to imitate. It is like Caliban chasing Ariel. Ariel has jumped onto a branch; Caliban expends his mass momentum in crashing into the tree.

In the nervous system the physical factors which account for the momentum of emotion are those listed above by Cannon, from acceleration of the heart to the increase of blood sugar. The most inert and persistent among these are the chemical factors. We are literally poisoned by our moods; the duration of these endocrine processes is of a distinctly greater order of magnitude than that of cortical associations. They represent the material substratum of the emotional charge, which, incapable of quick adjustment, becomes redundant and is exploded in the relieving muscular contractions of the discharge reflex.

We may now express the emotional dynamics of the comic in the following terms:

The abrupt transfer of a train of thought from one operative field to another leads to its separation from its original emotional charge. An idea or situation seen in a sudden new light casts off its affective shadow.

This sudden dissociation of intellectual and emotional state, the rupture between knowing and feeling, is a fundamental characteristic of the comic, and incidentally explains the affinity of laughter and madness. The sane man laughs off a tension which an intellec-

tual flash has made him recognize as redundant or foolish. The schizophrenic, suffering from a loss of reality perception, "titters off" small portions of his constant tension each time a dim flash of reality intersects the "inner narrative" of his mania. But these occasional flashes merely draw little sparks; reality is not forceful enough to disrupt the irrational narrative; the affective pedal has got the upper hand over the mental chords. The narrative of the schizophrenic survives the flash; instead of saying, "I have been made a fool of," he remains one.

UNSOLVED PROBLEMS OF LAUGHTER

Our next question is why the discharge of redundant energy should take the particular form of laughter, instead of, say, flapping our arms or wriggling our toes. It is a question to which no conclusive answer can be given; there exist merely some sketchy hypotheses, speculative rather than empirical.

Spencer¹⁴ holds that, as the only purpose of the muscular activity in laughter is to get rid of a surplus of energy, the discharge will take the motor path of least resistance; and as "it is through the organs of speech that feeling passes into movement with the greatest frequency," he concludes that the muscles round the mouth will constitute the channel of least resistance—an argument made untenable by the fact that speech is a cortical, laughter an autonomic function. More convincing is Freud's remark (in a footnote of *Wit and Its Relations to the Unconscious*). He says:

According to the best of my knowledge, the grimaces and contortions of the corners of the mouth that characterize laughter appear first in the satisfied and satiated nursling when he drowsily quits the breast. There it is a correct motion of expression since it bespeaks the determination to take no more nourishment, an "enough" so to speak, or rather a "more than enough." This primal sense of pleasurable satisfaction may have furnished the smile, which ever remains the basic phenomenon of laughter, with the later connection with the pleasurable processes of discharge (de-tension).

¹⁴ *Op. cit.*

This seems also to be the opinion of James: "Satisfaction goes with a sucking smile," and we may thus tentatively assume that laughter, being a form of relief from tension, will take the path of the earliest muscular relief pattern (that is, the suckling's relief from hunger), which becomes by constant facilitation a path of least resistance. As for the *breathing technique* of laughter, it is characterized by explosive exhalation in which the tension that caused us to hold our breath seems to be literally "puffed away"; and the repetition of the process in prolonged fits of laughter may be regarded as a kind of respiratory gymnastics designed to work off the surplus tension.¹⁵ The exaggerated *gestures* of the laughing fit, slapping the thighs, contortions and convulsions, obviously serve the same purpose: the discharge of the surplus motor energy caused by the release of blood sugar and adrenin into the circulation. Such violent forms of display may seem out of proportion to the mild excitement caused by watching a comic performance or listening to a joke, but the process is obviously of the trigger-release type, where a minute innervation opens the tap for the spilling of large stores of energy. Laughing fits may actually involve several release mechanisms of different types: amplification of impulses through atavistic echoes ("overstatements by the body"); the release of repressed emotions (sadism in the slapping, slogging type of burlesque, sex in the gloating type of joke), imitative social infection (child audiences at pantomimes, giggling adolescents); and, finally, the biochemical trigger action of the sympathico-adrenal system.

HUMOUR AND THE RISE OF CIVILIZATION

The emotional dynamics of laughter suggest some general considerations of a somewhat speculative character. It was said that the

¹⁵ "In order that the products of excitation may be quickly and completely consumed, the powerful group of expiratory muscles must have some resistance against which they can exert themselves strongly and at the same time provide for adequate respiratory exchange. The intermittent closure of the epiglottis serves this purpose admirably, just as the horizontal bars afford the resistance against which muscles may be exercised" (Crile, *The Origin and Nature of the Emotions*).

functions of the thalamic level and of the autonomic nervous system still partly echo conditions of an evolutionary stage when the struggle for existence was more deadly than at present, and when even faint stimuli, such as a specific scent or sound, necessitated immediate and violent reactions of fight or flight. As security and comfort increased in the species, the affect-amplifying emergency-mechanisms of the sympathico-adrenal system became gradually superfluous. But organs and functions do not atrophy at the same speed as they become socially redundant. Hence our emotional impulses, whether of aggressive, sexual, or fearful nature, are frequently "overstatements" of the reactions required or permitted at our present evolutionary level; and their neurochemical substratum cannot be worked off in overt activities, in fight, flight, or copulation. Cannon has stressed the fact that "if no action succeeds the excitement (of the sympathico-adrenal system), and the emotional stress persists, then the bodily changes may be in themselves profoundly upsetting to the organism as a whole"; while Hoskins, in discussing more particularly the energizing function of the adrenal secretion, emphasizes:

When . . . circumstances do not permit the biologically normal muscular activity, such as fighting or running away, these changes serve merely to disrupt the adjustments for repose. Furthermore, the emotional tension, failing release by appropriate over-activity, persists and prolongs the maladjustments. The interference with the normal equilibrium thus set up may lead to chronic high blood pressure, gastric ulcer, and a variety of other functional and metabolic disorders—including many of those which go to make up the picture of "neurasthenia."

We find here the biological basis of Freud's diagnosis of our *Civilization and Its Discontents*. It should be noted that the Freudian mechanism of *unconscious* repression is merely one (though clinically the most important) form in which social pressure makes us "understate" in overt behaviour the natural responses of the body. Conscious restraint of rage might cause an honest stroke without previous neurotic detour; and Alvarez has shown that digestive disorders,

including ulcers, may be explained in direct neurohormonal terms without recourse to psychoanalytic concepts. (They could be called neurogenic rather than psychogenic.)

Thus the anachronistic character of the older levels of nervous function had to be compensated, as security and convention increased in the species, by specific discharge channels for redundant excitations. The main remedy, the integration and sublimation of impulses, will be discussed in a later chapter; sport and competitive games obviously belong to this category. Other outlets are the pathological symptoms produced by conscious or unconscious repression, the hypereroticism of civilized life, and so on. We are now able to see the "luxury reflex" of laughter in a larger biological perspective. In the gradually emerging sense of humour, we have a further outlet mechanism with the specific function of disposing of one type of redundant energy: that of emotion cast off by the intellect.

It is obviously a new reflex, for which the *need* arises at a high evolutionary level by the gradual increase of the security of existence, and for which the *possibility* arises at the stage when reasoning has gained a certain degree of autonomy from emotion. Under the level of the primates, "feeling" and "thought" form a practically indivisible unity, or rather, "thought" is a mere shadow of feeling. Only as thought gradually becomes *detached* from feeling, and acquires that swift nimbleness of the cortical compared to the affective processes, are the conditions given for *that separation of the two which is subjectively reflected as the sense of humour*. And only on this basis of cortical emancipation can the "detached" mind perceive its own emotion as redundant, in the smiling realization that "I have been fooled." The first time the savage or the child is capable of laughing away his own anxiety, he departs at right angles from the single-minded, linear instinct-drive which has guided him before. Beneath the human level there is neither the possibility nor the need for laughter; it could only arise in a biologically comfortable species with a surplus of energies and cognitive autonomy. The sudden realization that one's own emotional state is "unreasonable" signalizes the emergence of self-criticism, of the faculty of

seeing oneself *from outside*; and that is an eminently “witty” discovery.

Thus laughter rings the bell of man’s departure from the rails of instinct. He has emancipated himself from the humourless laws of the biological urge, from the fanaticism of purposeful single-mindedness; he has become bisociatively double-minded. All animals are fanatics; man is able to see both faces of the medal at the same time, and “turn things over” in his head; he can see the trivial aspects of his tragedy, and the tragic absurdity of his routine.

VI

Application of the Theory to Various Forms of the Comic

PRELIMINARY REMARKS

WE HAVE now assembled the elements of our theory and shall test it on various types of the comic. No pedantic classification of the infinite shades of laughter stimuli will be attempted, nor can our treatment, or any other, raise the claim of completeness. We must confine ourselves to the analysis of some typical samples which will provide the reader with the clues for testing the theory for himself.

Three preliminary remarks are necessary. The first refers to the well-known phenomenon of the infectiousness of laughter, its facilitation by convivial company. Bergson, surprisingly enough, believes that one can only laugh in the presence of others, as this contention fits his theory of laughter as an act of social correction.¹ But it must be a very humourless person who has never chuckled to himself while reading alone or looking at a cartoon; nor is it uncommon that, alone in a room, one smiles or laughs aloud at the sudden recurrence of a funny memory. Social infection or unconscious imitation is a phenomenon which laughter shares with many other emotional manifestations: yawning, clearing of the throat, panic, hysteria, and so forth, and requires no specific explanation within the theoretical framework of the comic.

Secondly, it should be remembered (compare Chapter I) that

¹ "One has no taste for the comic when one feels isolated. It seems that laughter needs an echo. . . . Our laughter is always the laughter of a group."

laughter is frequently only in part "genuine," that is, a reflexoid discharge of nervous energy which has suddenly become redundant; the rest of it is "forced," "artificial," or "conventional"—in other words, a voluntary or habit-conditioned redirection of additional energy into the channels of the discharge reflex, once these have become even faintly activated. In this context particular attention should be paid to the phenomenon of "gloating," which occurs in response to jokes of the coarser type with a strong aggressive or sexual charge, which may be partly unconscious. In this case only part of the charge will be capable of being exploded in laughter; the remainder of the emotion, and particularly its unconscious components, will have a tendency to persist in the original direction, regardless of the fact that the narrative channel has been cut. To deflect this "high-pressure component" from its original aim into laughter may require some voluntary effort, and the laughter will sound accordingly forced. Sometimes this effort is not entirely successful, and nervous channels other than those of laughter become innervated—hence the ambiguous and embarrassing facial expression of persons gloating over grossly sexual jokes or cartoons. The term "gloating" then refers to nonspecific accompanying phenomena of genuine laughter, that is, to nervous energy forcibly deflected by a voluntary nervous effort into laughter, or simultaneously manifesting itself in forms other than laughter.

Thirdly, laughter or smiling frequently occur in response to a stimulus which itself is not comic, but merely a sign or symbol for a comic stimulus, or even a symbol for a symbol. Examples are Chaplin's boots and whirling stick, caricatures of celebrities reduced to a few symbolic hints (Hitler's lock, Churchill's cigar); catch phrases and fashionable idiomatic allusions to well-known comic events. The comic is subject to the laws of conditioning as are other mental phenomena, and the analysis of a comic stimulus is often impossible without following backward the associative thread, sometimes long and involved, which connects the branch with the root.

A certain comic pattern may be inexplicable when taken by itself, and can only be understood by its resemblance to another pattern,

which only makes us laugh by virtue of its kinship with a third, and so on for a considerable distance; whence follows that psychological analysis, however enlightened and penetrating it may be, will necessarily go astray unless in possession of the thread along which the comic impression has travelled from one end of the series to the other.

BERGSON.

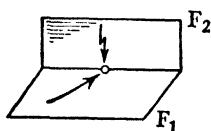
It need not surprise us, then, that in many examples of such indirectly conditioned comic stimuli, the mechanism of gradually accumulating tension in the course of a narrative and then exploding it will be absent. In looking at a caricature, the effect is almost instantaneous, and the successive phases of accumulation and discharge of tension seem to be absent. In such cases associative memory serves as an accumulator, whose pent-up and partly unconscious emotive charges are tapped as soon as the appropriate field is stimulated. The same applies to the instantaneous effect of the appearance of familiar comic characters—Falstaff, Blimp—or of popular comic actors on the stage. The smile which greets them has the character of a conditioned reflex, its emotive charge being a mixture of memories and expectations. Equally effective are certain evocative *symbols* which are the cartoonist's stock-in-trade: the Frenchman's unshaven face, the plaits of the German Fräulein, the artist's mane, the checked coat of the squire.

It follows from the above that a joke, caricature, or comedy scene can rarely be reduced to a single geometrical pattern; the more subtle type of comic stimulus is, as a rule, a compound of several bisociative effects, some of which are more pronounced and provide the dominant note, as it were, while other allusions or conditioned symbols act as harmonics and provide colour and brilliance to the total effect. Obvious examples are caricature and text, which may each be funny more or less independently from each other, and "stepped-up" jokes with several successive junctional discharges. Hence the analysis even of some apparently simple comic stimuli may be a tedious business, requiring almost as much patient effort as the chemical analysis of a perfume.

THE PRACTICAL JOKE AND THE BERGSONIAN BISOCIATION

We shall begin our survey with the coarser and more primitive types of the comic. The mechanism of the *practical joke* has already been alluded to: it consists in the sudden bisociation of one dominant aspect of the victim (his dignity, conceit, spirituality) with another, previously neglected aspect (his physiological functions, physical inertia, and so forth). The narrative in this case is the victim's behaviour up to the point of the catastrophe, the flash is his subsequent behaviour, governed by totally different physical laws. In the onlooker's mind these two sequences have different associative contexts; that is, they belong to different operative fields.

Let field F_1 represent the network of habitual associations in the pupil's mind governed by the selective operator of the teacher's authority, sternness, and so forth. Let F_2 represent the associative contexts of the law of gravity governing physical bodies. Assuming that the legs of the teacher's chair have been sawn through before that worthy's entry into the classroom, the resulting bisociative crash needs no further elucidation.



The majority of practical jokes may be regarded as instances of the "mechanical encrusted on the living," which, according to Bergson, is the essence of the comic. The Bergsonian mechanism applies to all forms of the comic where a subject is suddenly seen under the dual aspect of a spiritual being and an inert automaton subject to mechanical laws: the person slipping on a banana skin; the marionette on strings, Punch and Judy, inanimate objects coming alive in cartoons, hats in a gust of wind running away with wilful irony, dancers imitating dolls, soldiers marching like automatons, and so forth. But as we have seen in previous examples and shall see in others, this particular clash between inert matter and living organism is only one among the many possible combinations of bisociated fields, and Bergson's theory thus appears as a special case contained in the general law.

It is important to note that in this, as in all subsequent types of bisociation, it depends entirely on the quality of the emotional charge; that is, the onlooker's attitude, whether the clash of the two fields appears as comic or tragic, ludicrous or poetic. The victim of physical mishaps becomes tragic when sympathy and identification replace the feeling of superiority. Man as a plaything of Nature, as a marionette on strings, is a frequently recurring expression of poetic complaint; and the intersection in man of spirit and inert matter finds its final expression in the rigidity of death.

THE HUMAN AND THE ANIMAL

Another popular bisociative pattern, not far removed from the Bergsonian, is the intersection of the human and the animal. Obvious examples are Walt Disney's cartoons, and picture books for children where animals behave as if they were human without losing their animal looks and movements; they live on the line of intersection of the two planes. Equally effective is the reverse procedure: the discovery of horsy, piggy, mousy features in the human face.

Again, a different emotional charge will produce tragic instead of comic effects: Odysseus' companions are transformed into swine; the werewolf, the vampire, and the revelation of man's "animal instincts" in general are leitmotives of folklore and tragedy.

PLAY AND IMITATION

More complex are the reasons why playing kittens and puppies are droll and make us laugh. Analysis will reveal here several factors. First, the puppy with its trustingness, attachment, puzzled facial expression, its helpless waddling and tumbling which contrast with its clever use of the forepaws as "hands," and in many other respects, appears like a human baby. More precisely, the puppy is not yet a dog for the same reasons that the baby is not yet a man, and this common incompleteness and playfulness facilitates the bisociative double aspect. Secondly, this helplessness—the puppy's frequent falls and tumbles—are comic in themselves by bisociation of the animate with the inert. Thirdly, the bodily disproportions of the fat, stump-legged puppy with its padded paws are again comic for

reasons which will be dealt with when analysing caricature. Fourthly—and this is frequently the dominant factor—there is the comic element of *play*.

Play occupies a dominant part in theories of the comic and has sometimes been regarded as its very essence. In the present theory the effects of play on the onlooker's mind result in the bisociation of two behaviour patterns: the infantile and the adult. The child with a bowler hat and stuck-on beard playing at being the doctor is comic because he is seen as a child and as the doctor at the same time. Thus play appears in our context as a subcategory of bisociative *imitation* or *impersonation*. Everything is comic which appears and behaves as itself and as something else at the same time, on condition that the comparison is slightly degrading to one or both behaviour patterns. The comedian impersonating a public character, two people functioning as the legs of the pantomime horse, men dressed as women and women dressed as men, children behaving like grownups and grownups like children—in all these cases two patterns of behaviour, the real and the impersonated, clash and reduce each other *ad absurdum*. The play of young animals and children is always consciously or instinctively an imitation (or anticipation) of adult instinct drives and behaviour patterns—which explains why, for example, the ferocious growls of the puppy strike us as comic.

All this again implies an attitude of faint aggression or condescending superiority on our part. The opposite emotional charge of sympathetic identification on the part of the audience transforms comic impersonation into dramatic illusion. The apparent drollness of the child, by a simple shift of emotional emphasis, reveals its tragic counterpart. Psychoanalysis and sensitive fiction have familiarized us with the intensity of suffering, the secret dramas of the nursery and school; with the tragic adult in the child.

PARODY

A special variant of imitation is the parody. It debunks poetic illusion and exalted or merely pompous pretence by bisociating it with the trivial, the familiar, the all-too-human. Accordingly, the



THE BRITISH LION IN 1850;

OR, THE EFFECTS OF FREE TRADE.

PLATE II

parodist's favourite points of attack are the points of junction where the two fields, the exalted and the familiar, meet and where, therefore, the former is most vulnerable. Stage properties functioning in the wrong way, wigs falling off, dramatic gestures suspended in the air are points of intersection of the tragic and trivial planes. In parodying artists, singers, public characters, the impersonator similarly concentrates his attention on those features of character and behaviour which are either manneristic personality props or which have a dramatic effect in their proper context as parts of a functional whole, but become petrified and trivial when detached from it. This latter technique leads us to the *caricature*.

CARICATURE AND CARTOON

The caricature is the visual form of the comic, and at the same time a branch of representative art. More precisely, caricature is the aggressive variant of visual art, just as the comic comparison is the aggressive variant of the poetic image and witticism the malicious variant of ingenuity. Its analysis meets with the same difficulties as all verbal formulations of the effects of visual art; it is bound to sound pedantic.

From the point of view of explanation, the simplest form of the caricature is the traditional type of politically symbolic drawings—John Bull, the Russian Bear, Uncle Sam, the Angel of Peace with the olive branch—which we find so frequently in old volumes of *Punch*. The last-century drawing reproduced here is a fair example.

The faint comic effect is derived from bisociative mechanisms already familiar to us: the ferocious lion's head with the benign expression of the pub habitué and Falstaff's potbelly and short legs; the lion's tail adorned with a ribbon and hung over the back of a chair. The modern caricaturist works with more sophisticated effects, but he has retained in his technical armoury one indispensable stage prop, the intellectually evocative visual symbol as a conditioned stimulus (Blimp's walrus moustache, the top hat, the monocle, and so forth).

Our next step is from the symbolical caricature to the caricature

in the proper sense, where the comic effect is obtained by purely visual means. Its prototype is the human figure seen in a distorting mirror at a fair, and its infallibly ludicrous effect is a direct disproof of Bergson's theory of the caricature (compare Appendix II). If we analyse our feelings in front of the distorting mirror which reflects our own image elongated or compressed to absurdity or deformed into a wavy outline, we find, first, that what we see is at the same time ourselves and not ourselves; the familiar self which we regard as a living indivisible functional unit has been submitted to an operation as if it were nothing but a visual form, an image on an elastic surface that can be stretched in all directions. But we know that it is impossible to elongate our skull or compress it like a rubber ball any more than it is possible to boil a horse in order to dye it blue. And yet in the mirror it is done. In the case of the horse, we had bisociation between the laws of the organic and the inorganic; in the case of the mirror, where the impossible is accomplished, our eyes contradict our brains, we have bisociation of the *perceptual* and the *conceptual* fields. Our conceptual ego is being dealt with in purely optical, perceptual terms; the two fields are superimposed upon each other.

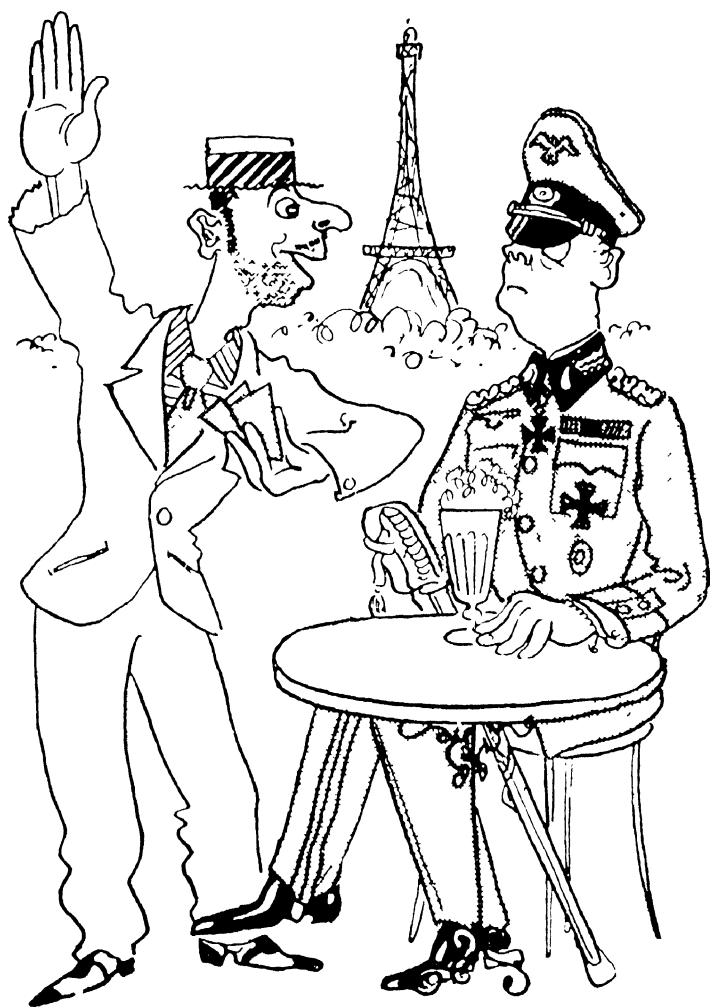
The distorting mirror operates by exaggerating one dimension (e.g. the vertical) at the expense of another. The caricaturist distorts not simply in a spatial direction, but by exaggerating spatial form in a direction which is already indicated by nature. Such rudimentary disproportions of single features, or of a pattern of features, give the face its characteristic expression. By exaggerating them, the caricaturist exaggerates the expression itself and fixates or rigidifies it at the expense of the variety of other expressions which come and go on the living face and attenuate its disproportions. But this exaggeration and fixation is not, as some theorists thought, in itself sufficient to produce a comic effect. The exaggeration must produce an effect which is at the same time *visually plausible* and *biologically impossible*, that is, absurd. This may be achieved by the extent of exaggeration—a nose so long, or so beaklike that, although it is visually only an extension of a familiar feature, it is organically im-

possible for a man to have such a nose. Cases of gigantism, pathological obesity, or other monstrosities are horrifying, not comic, because they are both visually *and factually* real, because there is no clash between the seen and the known. The caricature of a woman with moustaches is comic; the bearded woman of the fairs is not. Midgets only become comic when they behave bumptiously or pompously or arrogantly, as if their bodily status warranted such behaviour; then there is bisociation between the perceptual and conceptual associations. The comic effect of the caricature may also be achieved by oversimplification—by neglecting or leaving out all features except the one that is emphasized. Again, the effect is plausible in the drawing and impossible in reality. Frequently, however, in this case the biological impossibility in the drawing is not fully conscious—though the comic effect rests upon it—because art has so familiarized us with “leaving out,” with concentrating on the essential, that we no longer see what is left out, as it were. Primitives frequently do not realize that a drawing is meant to represent a man, while we automatically fill in the missing details, shadows, colours, and so forth. The spectator only becomes fully conscious of the oversimplifying technique of the caricature when it is carried to its extreme, for example, Hitler represented by two black dots and a circle (lock, moustache, and mouth). Visually, we have all that is needed; biologically, a face minus contour, nose, and so forth is impossible. Such caricatures have a faint riddle character; the criteria of relevance, exaggeration, simplification, and economy (compare Chapter III) are met with once again.

Thus the main techniques of the caricature are based on bisociations of the *perceptual* and the *conceptual* fields, of *form* and *function*, and of the *part* and the *whole*. The exaggeration of one characteristic part (a prominent nose) may make the rest of the face appear as a mere appendix to it; the part has been detached from its functional context in the whole and is seen as pure form, a nose *an sich*; or it may visually dominate the whole, while functionally it is, of course, the other way round. The object of such visual hypostasis may be a single feature or a combination of features, a characteristic piece

of clothing or even an accessory like a cigar; frequently it is a characteristic gesture or facial expression. In the latter case the expression swallows the man, as it were; he has become the visually concrete, humanly abstract impersonification of an idea: greed, lechery, arrogance, or stupidity. A good caricature of this type is like a mask for the Greek stage worn by an actor in pyjamas. The comic results here from the clash between the abstracted visual expression of an emotive state or feature given in inhuman concentration, and the all-too-human flesh, which the rest of the picture or accompanying text reveals.

Lancaster's cartoon combines all the techniques discussed above. It contains a number of *evocative symbols* with well-established associative contexts: the Frenchman's hat, stubbly face, cheap, gaudy shirt and pointed shoes; the German officer's iron crosses, uniform, monocle and spurs; the Eiffel Tower, the iron-legged table of French café terraces. Next, we find a number of bisociations in comic *detail*: the Frenchman's right hand pretends not to know what his left hand does, one being engaged in heroics, the other in peddling pornography; the two fields meet in the expression of his face as well as in the text. The Roman salute growing out of the frayed sleeve of the French reach-me-down suit adds a further bisociative detail. The techniques of *exaggeration* and *simplification* in the service of characteristic expression are used so discreetly that they only become fully conscious when we scrutinize the two faces feature by feature: eyebrow, eyes, nose, nostrils, lips. The Frenchman's is comic through the contrast between the lively, almost innocent enthusiasm of the eyes and the salacious greed of the rest; this contrast between his pretence and his cunning is reinforced in every detail. The officer's expression is like a mask that doesn't fit: the aristocratic air clashes with the cauliflower ears and sausage neck; the monocle's function is defeated by the peak of the cap; the nose of the Herrenmensch is that of a degenerate; the mouth is arrogant but weak; the pretence of physical strength is contradicted by the subtle disproportion between the big head and the smallish torso with the sloping, too narrow shoulders.



"Heil Hitler! Feebly post-cards?"

From Osbert Lancaster's *New Pocket Cartoons*
by permission of Mr John Murray

PLATE III

Finally, the text drives home the dominant theme of the picture, the intersection of Walhalla and the cosy brothel. Its laconic wording performs in one jump the transition from one plane to the other, and provides us with the additional satisfaction of divining for ourselves the implicit extension of the theme: to wit, that Walhalla is a painted stage prop but the pigsty a reality.

It hardly needs mentioning that most of the associations thrashed out in this commentary would normally occur in the beholder of the cartoon on a semiconscious or unconscious level; not explicit analysis but the automatic innervation of the appropriate fields and their mutual interference provide the mechanism of the comic. It is equally obvious that a good deal of the emotion discharged in our own amusement is in this case of a sexual nature, although, or just because, we only see the back of the tempting postcards in the cartoon. But a purely sexual charge would not produce a comic effect without the element of aggressive malice.

All the technical tricks of the caricature are equally to be found in "serious" art, as we shall see in Appendix I. Thus exaggeration and simplification appear in art as the essential element of *stylization*, and can be carried very far, as in primitive African and South American carving, in Egyptian and Byzantine painting, or in modern sculpture, without disrupting the artistic effect. The dualism of form and function is at the basis of cubistic and futuristic techniques; the intersection of the perceptual with the conceptual at the basis of expressionism. All these forms will have the effect of art on the spectator whose associative make-up is so conditioned that he responds with a positive, projective attitude; but the same modern picture will at once be turned into a caricature in the eyes of the person who, differently conditioned, responds with self-assertive aggression. And this applies not only to new experimental forms of art, but equally to certain conservative forms which cling to the sentimental values of past epochs. Between the two extremes of projective identification and aggressive derogation stretches a continuous spectrum of the emotive effects of representative art.

DISTORTIONS OF FORM

We have to return once more to more primitive types of the comic. The midget, we said, is not comic unless he behaves as if he were a tall man, and the same applies to other shortcomings and deformities. But here we have an objection to meet: children do jeer and laugh at dwarfs, hunchbacks, stutterers; at foreigners with a strange pronunciation, at people oddly dressed, and in general at any appearance or behaviour which deviates from the norm. So did the grownups of less tolerant ages, and they still do where a backwoodish or parochial outlook prevails.

The difference lies obviously again in the emotional attitude. To the civilized adult deformity is only comic when it is *not real*, for example, in the distorting mirror or in the caricature, where two fields intersect: the seen and the known. The dwarf, cripple, or monster is not comic because, though a distortion of the human norm, he is known to be *real*; there is no clash between the perceptual and the conceptual, only an adjustment of the latter to Nature's cruel whims. This attitude has become so common in civilized society that we no longer realize the fact that it implies sympathetic imagination, the recognition of a human being in whatever distorted shape: that is, an act of projective empathy,² of partial identification. Only by virtue of this projective mechanism are deviations from the familiar norm included in the category of the human and recognized as beings who, though different in appearance, live and feel as the self. In children and primitives this mechanism is absent or rudimentary. Piaget,³ among others, has strikingly shown how late the child accords to his fellow beings a conscious ego like his own. The more the person deviates from the familiar norm of the child's surroundings, the more difficult it is for the child to project into him life and feeling, to invest the other ego

² "Empathy" (*Einfühlung*): the putting or feeling one's self into the place of somebody or something else.

³ Piaget, J., *The Language and Thought of the Child; The Child's Conception of Physical Causality*; etc.

with the attributes of his own experience. The same applies to the treatment, by people on low levels of civilization, of foreigners, slaves, serfs, the sick, the delinquent, the deformed. The creature who does not "belong" to the tribe, clan, caste, or parish, who is outside the narrow circle of the familiar, consecrated norm, is not really human; he only aspires or pretends to be. As he is divested of a soul, as no feeling, no suffering is projected into him, he is merely a caricature, a distorted image of a "real" human being. To civilized man the dwarf is only comic when he pretends to be tall, which he is not; to the primitive the dwarf is comic in himself because he pretends to be human, which he is not.

In other words, we again find that self-transcending identification makes a certain bisociative pattern appear as tragic, while self-asserting superiority with its concomitant aggressive-derogatory tendency makes the same pattern appear as comic. To the civilized, deformities and misfits will only appear as comic if sympathy is anaesthetized and unconscious derogatory tendencies thus gain the upper hand. This, as we saw, is the case when the deformity is recognized as not real—either an optical illusion, as in the distorting mirror, or denied by the victim himself, as in the case of the strutting dwarf; or the result of an imitative illusion. The stutterer causes embarrassment; the person with normal speech who imitates the stutterer is comic; so is the youth in love who only stutters under the effect of a momentary emotion. Imitation of defects by the healthy thus enables them to be cruel with a clear conscience; the child and the primitive do not need this device.

DISTORTION OF FUNCTION

So far we have only dealt with distortion of form; we now turn to distortions of *function*. We have mentioned stuttering as an example, but have not explained why it is comic. When the needle of the gramophone gets stuck in a groove and the soprano's voice keeps repeating the same syllables and the same quaver, we get a comic effect of the same type as that caused by the stutterer who struggles with a consonant and can't get on with the word. In both cases

attention becomes focused on a *detail*—the consonant or quaver—which formerly was only perceived as a part of a structural or functional whole. The detail has been torn from its context and placed under a microscope, as it were. We become suddenly aware of the effort and technicalities necessary for producing it, the complicated movements of lips and tongue, the acoustic qualities of a quaver isolated and suspended in the air. It is a quaver *an sich* as the caricaturist produces a nose *an sich*, a form detached from its function, a part torn from the whole, with its own operative field which clashes with the previously established field of the whole. The more the perception or performance of a functional whole is facilitated by habit, the less conscious attention is paid to the detail, and the more vivid the bisociative clash when the part suddenly emerges in its own right, with its self-contained form and operative field. The stutterer is comic for the same reason as the centipede who was asked in which order he moved his hundred feet, and who, on beginning to reflect on the problem, couldn't walk any more.

The same bisociation of part and whole, or form and function, underlies the comic effect of the self-conscious, timid person who doesn't know what to do with his hands and feet, and who, like the stutterer, stumbles over details which the self-assured person takes in his stride. By a further twist of the mechanism, all objects seem to turn against him because he has lost the instinctive mastery over them; until, in the burlesque film of the bull-in-the-china-shop kind, or in the misadventures of Donald Duck, the role of the living and the inanimate seem reversed. We have thus arrived at the Bergsonian mechanism in reverse form—an example of the gradual shading of one type of the comic into the other, which corresponds to the continuity between the respective pairs of operative fields involved. This continuity is due to the fact that certain fields, the behaviour patterns of timidity and of clumsiness for example, are only distinguished by small implicit components in the compound operators.

The comic effects of *misspelling* in the letters of children or semi-illiterates is a further variant of the bisociation between form and

function or part and whole. The misspelt word is a minor functional monstrosity. Normally we do not read by additive spelling of letters; the visual aspect of a word, and even of a series of words, form functional wholes or Gestalt configurations. The proof is that often, when in doubt about the spelling of a word, we write it down in order to see whether the whole "looks all right." There is thus a fixed, automatic connection between the visual and the auditory-vocal aspect of words, and this pattern is suddenly disrupted when we see a word spelt differently—provided of course that the faulty spelling is, as such, *phonetically* correct. We then have a pattern of direct correspondence between letters and sounds superimposed upon the habitual pattern of the correspondence between groups of letters as functional wholes and their conventional pronunciation. This may be reinforced by a naïve punctuation and division of words, which gives a phonetically correct echo of the rhythm of speech, but is conventionally and often also logically absurd (words cut in halves or glued together). Frequently the result is puns or near-puns; but these are secondary effects.

Mispronunciation has obviously a similar mechanism, which may combine with others. The half-educated person who stumbles over long words is comic because his pretence at erudition is debunked; he is a parodist, though an involuntary one, which increases our malicious pleasure. A foreign accent is a functional deformity directly comic only to the primitive and child. The Greek word "barbarian" means both foreigner and stammerer (bar-bar-os); foreigners were comic because, though not really human, they pretended to be. Civilized man accepts a foreign accent with sympathetic tolerance, but if an Englishman imitates a Frenchman's accent, he becomes comic at once, for the same reasons that an imitated stutterer is funny. And again for the same reason—anaesthesia of sympathy—the written version of a foreign accent, spelt phonetically, is comic.

Eccentric clothes, including foreign fashions or the fashions of past periods, are comic because we regard normal, conventional articles of apparel as functional parts of their wearer, while as an unusual hat, umbrella, or boot disrupts the functional unity, focuses

attention on its nonfunctional aspects, and thus automatically becomes incongruous, absurd, preposterous. This is a further variant of the bisociation of form and function. If, however, the single pieces of eccentric dress fit together into a new functional unit, though different from that habitually associated with the wearer—the toddler in daddy's clothes, the stockbroker in knightly armour—we get again the mechanism of impersonation. As in many cases of the comic, two bisociative mechanisms may be combined; a woman's hat on a man may be funny merely as an incongruity of form and function, but may also contain the semiconscious, nascent field of the travesty. Eccentricities of appearance and deportment, the funniness of the "odd fish," can always be reduced to one or the other of the above patterns.

Our last example of functional deformity is *absent-mindedness*. This is the application of one habitual or professional pattern of thought or behaviour to a situation which requires a different one. When it was reported to the Emperor Joseph II of Austria that his people had started a revolution, he asked in surprise: "But have I signed a decree authorizing them to do so?" And vice versa, it is said that during the German revolution of 1918 the revolutionary mob refrained from attacking a military barracks because it had a garden in front with the sign, "It is *verboten* to step on the lawn."

Professional absent-mindedness leads to the clash of operative fields governed by different laws, which we have already covered: the dyer boiling the horse, or "Operation successful, patient dead." If the action required in a situation is a direct reversal of the behaviour pattern of the second field, the resultant clash is particularly striking; for example, Newton boiling his watch and timing it by looking at the egg in his hand.

QUANTITATIVE SCALES

In all bisociative patterns treated so far, the two intersecting fields obey qualitatively different laws. But it is also possible to obtain bisociative effects if the field vectors differ in the *quantitative* scale of the operations which they control. The divergence however must

be very considerable and involve different orders of magnitude, so that one scale becomes negligible compared to the other. If this is the case, quantity will change into quality, as the dialecticians have it. "The mountains laboured, the birth was a mouse" may serve as a motto and explanation for many forms of the comic, from the clown imitating the weight-lifting athlete with cardboard weights, to the type of comedy or comic story in which enormous efforts and detours lead to a result which has always been within reach: a man seducing a lovely masked lady who turns out to be his own wife.

THE CLOWN

Practically all the techniques discussed so far can be found in the repertory of the circus clown—the delightful, classic incarnation of the coarser type of humour. His face is a richly exaggerated caricature of stupidity, sometimes with the expression of laughter superimposed as an inviting stimulus; in each piece of his clothing, form battles against function; each of his movements is a clumsy parody of grace. He is the victim and perpetrator of preposterous practical jokes; he is both human and inert matter, for to survive all the slaps, whacks, and cracks, his skull must be made of ebony. He is the image in the distorting mirror, the clumsy impersonator of acrobats, ballet dancers, elephants, and fairies: Caliban imitating Ariel. He is a collection of deformities, bodily and functional; he stumbles over obstacles and words; he is timid, gauche, clumsy, eccentric, and absent-minded. Above all, he is the man of gigantic effort and diminutive accomplishment; he is the midwife who aids the mountain to deliver the mouse.

The clown's domain is the coarse, rich, overt type of humour; he leaves nothing to be guessed, he piles it on. A good deal of the enjoyment he causes is mild gloating, the discharge of sadistic, sexual, scatological tendencies by way of the purifying channels of laughter. One means of producing and prolonging this effect is *repetition*. The clown, and the clowning kind of music-hall comedian, will tell or act a long drawn-out narrative in which the same type of flash, the same comic pattern, the same situation, the same key words

recur again and again. Although repetition diminishes the effect of surprise, it has a cumulative effect on the emotive charge. The intellectual geometry is the same in each repeat, but new tension is easily drawn into the familiar channel. It is as if more and more liquid were being pumped into the same punctured pipe.

RICH AND DRY HUMOUR

Repetitive "piling on" is an important device of the rich, naïve, explicit type of humour. The opposite technique is the dry, implicit, laconic type. Our following examples belong to the latter type.

A variation of the technique of "different scales of measurement" occurs in the following dialogue between a nervous passenger on a bus and the conductor:

"What's the time?"

"Thursday."

"Oh, Lord, then I must get off."

It is a serial joke in which not two but three operative fields are successively involved, each with a different scale of measurement or "grid." Field One has a grid of hours and minutes, Field Two of the days of the week; the two differ only in quantitative scale but have qualitatively different associative contexts; the third field implies a grid not in time but in space—where to get off, not when. It is quite impossible to orient one's behaviour by using these three different grids simultaneously—and that is exactly what the passenger does.

But there is another aspect to this story. The victim of the practical joke makes us laugh because he "looks silly," because his expression reflects the helpless surprise or helpless anger which indicates that he has been thrown off his plane of habitual behaviour and abruptly transferred to a different plane, for example, in the case of the schoolmaster whose chair collapses, from the plane of authority to that of the physical gravity of his own body. But the passenger on the bus does not betray surprise; he behaves with perfect equanimity. He does not *look* foolish to the eye; only our superior intelligence

concludes that he *is*. In other words, the geometry of the joke is *implicit*; we have to complete in our minds the dotted lines of reasoning, whereas in the practical joke the essentials of the process are explicitly given. It is this difference in explicitness, in economy, which distinguishes the “dry” from the “rich” type of humour. The first type is told or acted with a serious face, and its comic content has a pronounced riddle character; the second type is the overt, Rabelaisian comic, which puts it on thickly. The incarnation of the rich type of humour is the clown; to the dry type belong the “surrealistic” stories, the lunatic stories, the English shaggydog jokes, the delayed-action cartoons of the *New Yorker*, and a good deal of so-called nonsense humour.

Here are a few further examples of stories of the “dry” category:

Two middle-aged accountants who both live in the suburb of Wimbledon, are travelling together in the train which takes them home from the City. A has an oddly shaped suitcase above him in the rack which awakens B's curiosity, but as A is reading his newspaper, B thinks it would be impolite to interrupt him. At last, however, he can't contain himself any longer:

B. “Sorry to disturb you, but what on earth are you carrying in that odd suitcase?”

A. “A mongoose.”

B. “A mongoose? What do you need a mongoose for in Wimbledon?”

A. “The mongoose is an animal which fights cobras.”

B. “Cobras? Who has ever seen a cobra in Wimbledon?”

A. “Well, you see, last night I dreamt that I was in the jungle and was attacked by a cobra. So I bought this mongoose to protect me.”

B. “But don't you see that the cobra you dreamt about isn't a real cobra?”

A. “And what makes you think that the mongoose in that suitcase is a real mongoose?”

Analysis: (A) Interference of two different “associative climates,” the drab world of the City, suburban train, evening paper on the one hand, the lurid jungle with cobras and mongooses on the other; (B) intersection of dream and reality, the dialogue oscillating between the two fields. The story is of the “dry” type because the

man with the suitcase doesn't realize these bisociative jumps and gives his explanations in the matter-of-fact voice of common-sense, as if the two fields were one.

A journalist visiting a lunatic asylum sees a patent sitting astride a chair and patiently angling with a worm in the washbasin. The journalist taps him jovially on the shoulder: "Did you have a good catch today, old man?" The lunatic looks him over with disgust:

"Have *you* ever caught a fish in a washbasin?"

The mechanism is similar to that in the previous example: intersection of the fields of reality and illusion. The lunatic's answer is on the plane of perfect common-sense, but he persists in angling; that is, his behaviour remains on a plane at right angles to his reasoning. A further aspect of the story is the "turning of the tables"; the journalist, by accepting the logic of illusion, is caught in his own trap, which increases our malicious pleasure. The geometry of this "burgled-thief" type of comic is the clash between the logic of the schemer and the logic of fate, or of his opponent. While he thinks that he is the winner, we know that he is the loser, and we follow the unfolding intrigue simultaneously through his blinkered eyes and our own superior knowledge.

A visitor in an asylum watches the patients in bathing trunks jump with glee from a newly erected diving tower.

"Marvellous," says the visitor. "How well the patients are looked after, and how they all enjoy themselves!"

"That's true," says his guide. "But you should visit us again next week, when the water's been let into the pool."

This dreadful joke is given as a riddle; the gap has to be filled in by visual imagination, as is frequently the case. Its geometry is the same as that of comic absent-mindedness: the patients apply one pattern of behaviour to a situation which requires another. Madness, after all, is merely the pathological extension of absent-mindedness, the separation of the field of reasoning from the field of reality-perception. An outstanding feature of the story is its extreme sadism;

unconscious destructive tendencies are admitted into consciousness because the story is so obviously a made-up one; and because of this obviousness of the pretence, it is not a tragedy but the parody of a tragedy. The same is true of other forms of "gruesome" humor, which debunks its own horrible narrative by showing that blood, daggers, and hangman's nooses are merely meant as stage props, while at the same time admitting a good deal of repressed sadism into the emotional charge. Examples are the Red Queen's "Off with her head" in *Alice in Wonderland*; or the following item from the Binet-Simon intelligence test:

The body of a poor young girl was found yesterday, cut into eighteen pieces. It is thought that she must have killed herself.

The mechanism will become clear in our discussion of "nonsense humour."

Here is another lunatic story—our last one:

A loony sees the gardener in front of the asylum tending the strawberry beds. He watches him for a while with quiet disapproval, and finally asks:

"What is that stuff you are sprinkling over the strawberries, my good man?"

"That's manure," says the gardener.

The loony shakes his head. "Personally, I prefer them with sugar," he says, "but then, of course, I am a lunatic."

Analysis: the bisociated fields are those referring to the production and consumption of strawberries respectively. By treating the first field in terms of the second, and disregarding the resulting incongruity, the lunatic appears as the sensible person and the gardener as the fool; the point is driven home by the quiet irony of the lunatic's final remark.

DISPLACEMENT

In the majority of our examples the selective operator of the two fields was so markedly different that, once we knew that the analysis

of the joke consisted in isolating the two intermixed patterns, there was not much difficulty in identifying and separating them. But the task is not always so easy, as the reader will find if he tries to analyse the following story before reading the commentary.

A blind man and a thirsty man were walking along the road.

"I wish I had a glass of milk to drink," said the thirsty man.

"What is milk?" asked the blind man.

"Milk is a white liquid," said the thirsty man.

"What is white?" asked the blind man.

"A swan is white," said the thirsty man.

"What is a swan?" asked the blind man.

"A swan is a bird with a bend in the neck."

"What is a bend in the neck?" asked the blind man.

The thirsty man lifted the blind man's arm and arranged the hand at an angle to it, imitating the curve of a swan's neck. "That's what a bend in the neck is," he explained.

"Ah!" said the blind man contentedly. "Now I know what milk is."

The two bisociated fields here are two methods of reasoning, both quite common and normal in their own right. The thirsty man associates each general concept with a particular example; the selective operator of his field of reasoning is "association by particularisation." The blind man's questions, on the other hand, aim at obtaining definitions. In the final flash, "Now I know what milk is," the two fields are telescoped into one. But even before the final point, the dialogue is faintly comic, because at each step the blind man expects a definition and gets an example. Thus a cumulative effect is obtained by repetition of the same geometrical pattern.

To put it differently: each answer of the thirsty man goes off at a tangent from the direction of the expected explanation. This leads us to the technique of *displacement* which plays such an important part in the Freudian theory.

A horse dealer anxious to sell a horse to a client, praised its qualities immoderately.

"If you mount this horse at midnight in Vienna," he boasted, "you will find yourself at four o'clock in the morning in Bratislava."

"And what on earth am I to do in Bratislava at four in the morning?" asked the client.

After FREUD.

The client's indignant question is perfectly logical. But it has nothing to do with the subject under discussion, which is the speed of the horse. The junction of the two associative contexts is "Bratislava, 4:00 A.M.," which in one field plays a quite accidental part as an improvised example, and in the second plays an essential part (compare Chapter IV). We shall have occasion to return to the mechanism of bisociation with shift of emphasis in later chapters.

VII

Application of the Theory to Various Forms of the Comic—Continued

SATIRE AND ALLEGORY

No sharp boundaries exist between satire, irony, parody, comedy, and so forth. Instead of attempting definitions, we shall consider the main characteristics of various literary forms, the terms referring to them being understood in the loose sense of general usage.

Satire operates with the essential technique of the caricature: the distortion of some characteristic feature of an individual or group by exaggeration and simplification. The satirical portrait of an individual is a verbal cartoon; satirical portraits of society are caricatures of human institutions and relations. As a rule, the features picked out for enlargement by the satirist are those of which he disapproves. "If nature's inspiration fails, indignation will beget the poem," says Juvenal—and his precept is valid for satirists of all ages, together with that of his colleague, Martial: "Some things are good; some are indifferent; more are bad and about these you will read here; not otherwise, Avitus, is a book produced."

The comic effect of the satire, like the distorting mirror's, is derived from the simultaneous presence in the reader's mind of both the exaggerated and the real; from his recognition of the familiar in the absurd, and of the absurd in the familiar. Without this bi-sociative duality the satire would be humourless. If the human Yahoos were really quite such evil-smelling monstrosities as Gulliver's Houyhnhnm hosts claim, the book would not be a satire, but

the flat statement of a deplorable truth. True invective is not satire; it only becomes it by deliberately overshooting its mark.

But exaggeration is not an aim in itself to the satirist; it is a means to focus consciousness on abuses and deformities in society which, blunted by habit, we have come to take for granted, so that we are no longer aware of them. The same purpose of exposing the unnoticed absurdity of certain costumes and institutions can be achieved if, instead of magnifying them, the satirist projects them, by means of the *allegory*, onto a different background—by preference that of animal society. Aristophanes' *The Birds*, Swift's *A Voyage to the Houyhnhnms*, Anatole France's *Penguin Island*, and, among modern writers, George Orwell's *Animal Farm*, are outstanding examples of this technique.

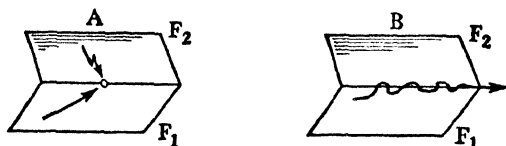
Again, a shift from aggression to identification in the emotional charge produces the tragic or poetic type of allergy, with Kafka as the outstanding modern example.

Satire is the first form of the comic so far discussed which belongs to the realm of literary art. Its principal function is to make us conscious of aspects of reality which remain invisible in the ordinary routine of life. This aim is achieved by the bisociative technique of showing us familiar experiences in a new perspective. Bisociation jerks the mind out of its dim, associative jogtrot along the beaten tracks of habit; it adds a new dimension to sensation and thought; it causes a deepened and intensified state of awareness. The satirist uses the bisociative technique to hold up formerly unnoticed aspects of reality to scorn and ridicule. We will meet with the same technique in the service of different tendencies in discussing poetry and tragic art, and, again with a different tendency, at the basis of creative discovery.

The satirical epic or allegory is also our first meeting with a long, continuous narrative whose comic effects do not terminate in a flash, but are sustained, with varying intensity, from beginning to end. As far as such divisions can be drawn at all, it is mainly this continuous sustained character which distinguishes "humour" from the "comic."

We saw in Chapter IV that in the joke and short comic anecdote

the narrative moves along field F_1 until it meets the flash which belongs to field F_2 ; there the tension is exploded and the story ends (A).



The humorous epic (B), on the other hand, moves all the time on, or very close to, the line of intersection of the two fields. In diagram A there is only one junctional concept; in diagram B the epic tale is throughout bisociated with both fields (penguins and humans). The epic of *Don Quixote* oscillates all the time along the line of intersection of two worlds, the "romantic" and the "trivial." Now and then situations arise in which the two associative contexts clash headlong, and we get sudden pointed comic effects; but, apart from these episodic explosions, the narrative is imbued with a continuous and sustained humour, which flows like an electric current between the poles of the trivial and the exalted. The same mechanism is found in those classic devices of the comedy, disguise and mistaken identity. Again we have a series of pointedly comic situations, and a sustained climate of humour, caused by the continuity of the dual context.

To the technically minded, this mechanism of the humorous epic may be made clearer by the analogy of an electric trolley tram. The motor of such a tram is fed by the electric current from the overhead wire; after running through the motor the current is earthed into the steel rail on the ground. Thus the tram, as it moves along, is constantly "bisociated," as it were, with the overhead wire (Field F_1) and with the earth (Field F_2). From time to time, however, the trolley-pole loses contact with the overhead wire—the narrative has departed from the line of intersection; we have forgotten for a moment that Dulcinea of Toboso is not really a princess. But a moment later the trolley-pole approaches the wire again and, before reestablishing contact, draws a spark. These are the comic flashes

interspersed in the epic; they occur each time we have been carried away by the field of illusion and rejoin the other field with a bump of surprise.

The emotive dynamics of sustained humour is a continuous, mild discharge of tension as opposed to the sudden explosions caused by pointed comic effects. It manifests itself in the smile rather than in laughter, though occasionally broadening out into a laugh. It may be a tender or scornful smile, a broad grin, or the smallest hint of amusement in the corner of the eye, according to the emotive charge which the narrative carries. Its hero may arouse strong feelings of sympathy, pity, or love; and in passages dominated by these, amusement yields to imaginative participation, and the smile fades, or lingers on from mere inertia. But wherever the tale recovers its humorous character, malice is present in the emotive charge; and it is this element of malice which gives it the specific stamp of humour, and is discharged in the smile, whatever other feelings may accompany it.

IRONY

Irony, according to Freud's definition, is the representation of something by its opposite; according to Eastman, it is understatement aimed at deflating boasting; according to Bergson, it is the description of a desirable state of things under the pretence of describing the real state of things. Doubtless each of the above statements correctly describes various techniques of irony. Their common denominator is probably best summed up by this abridged quotation from the *Concise Oxford Dictionary*: "Expression of one's meaning by . . . simulated adoption of another's point of view for purpose of ridicule."

If I say of a glutton: "He seems to be in poor appetite today, he ate only six eggs, one fried chicken, and two steaks for breakfast," I say indeed, in conformity with Freud's definition, the opposite of what I mean, but only because the glutton's view, which I feign to adopt, happens to be the opposite of mine. When Mark Antony calls Brutus an "honourable man," he is substituting the desirable

for the real, in conformity with Bergson, but only because he pretends to adopt the conspirators' estimate of the morality of their deed. The same applies to understatement: when the lunatic says to the gardener: "*I prefer strawberries with sugar, but then, of course, I am a lunatic,*" his mock modesty is ironical, but only because he pretends to adopt the gardener's (alleged) opinion that strawberries should be eaten with manure. It should be added that the "other" whose point of view the ironist adopts may be not an individual, but a group, or a nation, or society as a whole.

Thus irony consists in defeating an opponent on his own ground, that is, by accepting his premises, his values, his prejudices, his methods of reasoning, for the purpose of unmasking their implicit absurdity. It pretends to take seriously what it doesn't; it enters into the spirit of the other's game to demonstrate that the game is absurd. Freud tells the story of a pompous member of a royal family visiting a surgical hospital. The surgeon is engaged in amputating a patient's leg; the prince watches the operation and accompanies each phase with condescending expressions of his royal pleasure: "Well done, doctor . . . Jolly good show," and so forth. When the operation is over, the surgeon turns to the prince and says with a polite bow: "At Your Highness's orders—shall I take the other leg off now?"

By pretending to accept the prince's view of the privileges of royalty and carrying them to their logical conclusion, the surgeon exposes their absurdity.

The ironical statement thus moves on the line of intersection of two fields: it expresses the opinion of A, but couched in the terms of reference of B, which, as already said, may be the system of values, habits, and prejudices of a society or class. Irony is the subtlest weapon of derision, because it presupposes A's capacity of seeing through the eyes of B, of projecting himself into the other's mental structure. The psychiatrist who pretends to accept the schizophrenic's imaginations as real, the teacher who adapts his language to the mentality of the child, the dramatist who speaks through his characters' voices employ the same procedure with a different emotional charge. This again shows the continuity of gra-

dations between the tragic and the comic: the slightest change in the artist's attitude to the characters of his own creation determines whether they are treated "ironically" or "seriously."

COMIC VERSE AND NONSENSE HUMOUR

Comic verse derives its effects partly from the same sources as poetry in general, which will be considered in Part Four; and/or partly from specific techniques. Among the latter the most important is the bisociation of exalted form and trivial content. Certain metric forms, such as the hexameter or alexandrine, have an atmosphere of pathos, of the heroic and exalted, which is partly due to intrinsic reasons discussed in the section on poetry, and partly to conditioning from our schooldays, when these metres became associated with epic contents. Hence the pouring of trivial contents into these lofty moulds has in itself a bisociative comic effect—as if Sancho Panza appeared dressed in a Roman toga. The rolling dactyls of the first line of the limerick, for instance, carrying, instead of Hector and Ajax, a young lady named Irma as a passenger, makes that unfortunate young lady already comic, regardless of the dreadful mishaps which, we are sure, will befall her. In this atmosphere of malicious expectation, whatever witticisms the text offers will have a much increased explosive effect.

The bisociation of exalted form and trivial content is delightfully obvious in the panegyric choral ode on the

Beautiful Soup, so rich and green,
Waiting in a hot tureen . . .

One step further, and the content altogether loses its meaning:

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

Nonsense humour, as Eastman points out, is only effective if it is dressed in the perfect appearance of sense. In Carroll's inimitable

nonsense strophes this is achieved by the formal lyricism of the metre, by the use of syntactic cadences which, together with the onomatopoeic value and sound associations of the words, suggest an action of a certain type, though we are unable to say what exactly the action is. (This writer's image is of some small creatures circling and gambolling—"gyre and gimble"—on a brilliant day in the "web" of some flowering bush or tree.) The next strophe ("Beware the Jabberwock, my son!") even more tantalizingly insinuates a concrete content in a partly unintelligible, but in itself meaningful language. Each syntactical unit evokes some associative context and therefore has a kind of meaning, although this varies with each individual, like the ink blots of the Rohrschach test or the passing cloud which looks to Hamlet in turn like a camel, a weasel, and a whale. In other words, we have a partly meaningless phonetic pattern which gives an illusion of meaning, and is read or listened to in the atmosphere of this illusion, while we simultaneously know that we are being fooled and are fooling ourselves. To induce this bisociative split state of mind, to make the consumer believe in what he knows to be make-believe, is one of the fundamental techniques of art.

Nonsense humour in the strict sense of an effect derived from a meaningless text, does not exist. Rhymed gibberish is an extreme example, and even there the illusion of meaning is essential. In less extreme examples it is not the lack of meaning, but the clash of different systems of reasoning, the collision of incompatible "universes of discourse," which provide the startling effect. The apparently nonsensical dialogue about the mongoose is a typical example of the telescoping into one of two different fields of reference, which are mutually incompatible but each valid in themselves. The charm of *Alice in Wonderland* is the mathematical precision of its method in madness. Little Alice is a paragon of normality, good manners, and stubborn common-sense, and this is the reason why her excursion into the world of unleashed magic is so irresistibly funny; otherwise the book would simply be a fairy tale. Furthermore, though the laws of magic are not those of our physical world,

they are in some way self-consistent. Lewis Carroll was a mathematician; the reasoning of the creatures in his magic universe is like exercises in non-Euclidean geometry:

“Well! I’ve often seen a cat without a grin,” thought Alice; “but a grin without a cat! It’s the most curious thing I ever saw in my life.”

“It’s a poor sort of memory that only works backwards,” the Queen remarked.

“The rule is: jam to-morrow and jam yesterday—but never jam to-day.”

In these random samples of Wonderland reasoning, we identify bisociative patterns which have become familiar to us through previous instances. In the first, structure and function are treated as if they belonged to one field; in the second, a formally correct statement is based on the implicit axiom that time is reversible, and clashes with our knowledge that it is not; in the last, two mutually exclusive statements are telescoped into one line whose rhythmic scanning and syntax give the impression that it is a kind of popular adage or “golden rule of life.” A similar pseudoproverb is, “He never works between meals.” Into the phonetic framework of the original proverb, a word with an entirely different context has been smuggled; the clash is between the reassuring associative climate of the homely golden-rule rhythm, and the startlingly provocative meaning. The same bisociation between form and content is used in parodies of bureaucratic jargon or academic style.

The simplest example of the bisociation of form and content is the following contribution of the Rev. Charles L. Dodgson, Mathematical Lecturer of Christ Church College, Oxford, alias Lewis Carroll, to a philosophical symposium:

And what mean all these mysteries to me
Whose life is full of indices and surds?

$$x^2 + 7x + 53$$

— 114

Two completely alien symbolic fields are unified by auditory form—with rhyme and without reason.

A further variant of the bisociation of form and content is the “atrocious” rhyme. Its comic effect is due to enforced mispronunciation—functional deformity in the service of sensory conformity, as in the case of the man who sawed off his legs to fit his bed.

COMEDY

Most of the devices employed in comedy have already been analysed in previous chapters. It was once usual to classify comedies into those relying on the comic of situations, manners, and character; and though all such classifications are of small value, they may serve as an approximate guide.

In his discussion of the comic of situations, Bergson came nearest to the essence of the comic itself: “A situation is always comic,” he writes, “if it participates simultaneously in two series of events which are absolutely independent of each other, and if it can be interpreted in two quite different meanings.” One is tempted to cry “Fire!” but a couple of pages further on Bergson has dropped the clue and gone back to his metaphysical hobby; the interference of two independent series in a given situation is merely a further example of the “mechanisation of life.”

In fact the interference of series in its many variations—coincidence, mistaken identity, and so forth—is the clearest example of bisociated contexts. Any attempt at enumerating the various patterns of the comic of situations (disguise, confusion of time and occasion, and so on) would be tedious and repetitive. Similarly the main techniques of the comedy of manners have been discussed under the headings of Satire, Irony, and Caricature, and need no further elaboration. Our concluding remarks concern the comic of *character*.

A good history of literature could be written which would use as leitmotif the gradually growing realization of the complexities of character, its internal contradictions, its simultaneous existence on several planes. There are ups and downs on this curve according to the rise and fall of civilizations, but if we could draw the average

curve, it would probably show that, as far as literature can be said to "progress," it progresses in the direction of growing insight into the complexities of the human condition. Masterpieces are produced in each peak period, but they are relative peaks on a steadily mounting tide and can only be appreciated by an attitude of (not necessarily deliberate or conscious) regression to an earlier level. Hence the impossibility of copying their method and approach, even if we are taught to regard them as immortal models of perfection; they are perfect only relative to their own level of complexity.

This development can easily be demonstrated in the progress from the comic "type" to the comic "character." The type is a caricature in which exaggeration and simplification of one feature are carried almost to the point of abstraction—the miser, the glutton, the misanthropist, the cuckold, and so forth. The mechanism of the comic resulting from this technique has been analysed before, and needs no further comment. Equally obvious is the marked increase of complexity in the characters of modern comedy—in Tchekhov, Wilde, Shaw, or even Sacha Guitry.

A parallel development, and directly dependent on the first, is the gradual displacement of character features and of the situations deriving from them, from the comic towards the tragic end of the spectrum. Timidity, adolescent gaucherie, clumsiness in athletic games have moved from the sphere of the ludicrous to that of the psychological novel and self-pitying autobiography. Cuckoldry is no longer comic; the classic triangle has migrated from the vaudeville stage to the waiting room of the psychoanalyst. Harpagon's pedantry and meanness are aspects of his anal-erotic fixation; the bearded Jew is recognized as a scapegoat for irrational aggression; obesity and thinness, the deformities of body or mind are objects of sympathy. The turning point can be clearly seen where Shakespeare's figures change from comic into tragic characters: Shylock, the clown in *Lear*, Caliban, Falstaff at the end of *Henry V*. Growing insight into the complexities of human character, including one's own, has as its inevitable consequence sympathy and identification with the weaknesses and foibles of others. Hence the modern

comedy has increasingly to rely for its effects on a change from caricature to witticism, from the comic of situations to brilliant dialogue. But while individual aggression is in steady retreat and leads to the decline of the types of comic based on it, collective social aggressiveness against institutions, between classes and nations increases, and so, in consequence, does social satire on the stage, in novels, and cartoons. The old character types, the miser and cuckold, are replaced by social types: Blimp, the fox-hunting squire, the long-haired aesthete. With the crumbling of sex taboos, the sexy joke becomes increasingly sophisticated and implicit, sometimes almost a riddle, as in Peter Arno's cartoons. The general increase in education and sophistication furthers the tendency towards the dry, allusive wisecrack and the apparent nonsense joke. Charlie Chaplin marked the end of an era of social sentimentality towards the Little Man, the timid and downtrodden; the Marx Brothers are a mixture of buffoonery in a crazy, disintegrating world, with a kind of surrealistic logic—the twisted laws and curved spaces of the non-Euclidean geometries.

TICKLING

No theory of the comic would be complete if it could not explain why tickling makes us laugh. At the same time, it may be regarded as a test that the theory should be able to cover the whole range of laughter stimuli from the subtlest to this coarsest physiological form. In the present theory the answer can be summed up in a single phrase: *tickling is a mock aggression*. It is probably the first stimulus encountered in life which makes the infant experience a situation simultaneously in two different fields: the mother's tickle is a caress disguised as a mild attack.

For a while theorists held that the laughter caused by tickling is a purely physiological reflex response to a purely physiological stimulus. But already Darwin, Crile, and Sully had pointed out that the reflex response to tickling is squirming, wriggling, striving to withdraw the tickled part, which may or may not be accompanied by laughter, according to circumstances. This squirming-wriggling

response was explained by Darwin and Crile as a hereditary defence mechanism to escape a hostile grip on vulnerable areas of the body which are not normally exposed to attack: the soles of the feet, the neck, the armpits, belly, and flanks. It is a protective reflex, as sneezing and coughing are, against the intrusion of foreign bodies into the nose, and shaking the head against foreign bodies in the ear. If a fly creeps over the belly of a horse, we see a kind of contractile wave pass over the skin, the equivalent of the squirming of a tickled child.

A child fingers the pepper-pot, waves pepper into its nose, and sneezes violently. Touch it under the arm-pits, or finger its waist, and it wriggles vigorously. It sneezes to dislodge the pepper from its nose, and its wriggle suggests a sneeze to relieve its whole body. The violent squirm of the tickled child so obviously tried to avoid the tickling hand that, when the truth is perceived, it is difficult to understand how tickling and laughter could ever be identified or confused. GREGORY, *op. cit.*

Thus tickling will always call out a more or less pronounced wriggle response, but it will only call out laughter in addition to this if it is clearly perceived as a mock attack. There can be no attack without an attacking party; hence we don't laugh if we tickle ourselves.¹ If you tickle the inside of your nose with a feather, you will sneeze; if you tickle the sole of your foot, it will tend to wriggle, but you will not laugh.

Not only must there be a second person as an aggressor; his facial expression and whole attitude must be mock-aggressive—as mothers and nurses instinctively know. Battle cries like “peekaboo” and “bow wow” pay certain dividends, like the comedian's imitation of the lion's roar. As in every attack, the element of surprise plays an important part in tickling. The expert tickler's tactics never let the victim guess when and where the next pressure or pincer movement will occur. In the learned passage of Professor James Sully on the “Conditions of Successful Tickling,” we read:

¹ The question why this is so was once put to the B.B.C.'s “Brains Trust” and provoked a memorable display of inept erudition.

The common way of tickling a child is by running the fingers up the child's arm *like a mouse*. This evidently brings in an element of *local* uncertainty as well as of change. The effect is increased when, as frequently happens, there are pauses between the attacks of the fingers.

The invasion of the skin-territory, like that of larger territories, is, it would seem, likely to be more effective when it has an element of unpredictableness. The uncertainty is, I believe, sometimes increased by half-voluntary variations in the direction and in the velocity of the tickling movements. Whether the fact communicated by Dr. L. Robinson, that a child is more ticklish when dressed than when undressed, is explained by the increased obscurity of the process in the former case, I am not sure. It is worth noting, however, that some of the areas said to be most ticklish, e.g. the armpits and the neck, are inaccessible to sight. I believe, too, that when a child gives himself up to the full excitement of tickling he makes no attempt to see what is going on.

Experiments in tickling were lately carried out in Yale University on babies under one year old. They showed that the babies laughed fifteen times more often when tickled by their mothers than when they were tickled by strangers. (Experiments of this kind provide a brilliant confirmation of the charwoman's thesis that psychology has nothing to teach that any woman doesn't know already.) Naturally, the mock attack can only make the baby laugh if it knows that it is a *mock* attack, and with strangers one never knows. Even with its own mother there is an ever so slight feeling of uncertainty and apprehension, the expression of which oscillates with laughter in the baby's face and behaviour, and it is precisely this element of apprehension between two tickles which is relieved in the laughter accompanying the squirm. The rule of the game is, "Let me be just a little frightened so that I can enjoy the relief." Thus the mechanism is essentially the same as in the parody: the unmasking of a voluntarily accepted illusion.

The close relations between tickling, fondling, and eroticism are obvious, but have no direct relevance to tickling as a laughter stimulus. It is equally obvious that laughter or smiling soon become attached as fixed conditioned responses to the tickling stimulus, and keep functioning after the original meaning of the game has been

lost. Ticklishness in adults thus consists in the functioning of the original squirm reflex, which may or may not be accompanied by laughter as a conditioned response or as a sign of infantile regression. Homosexuals frequently claim to be extremely ticklish and display a tendency to squirming and wriggling poses as an expression of mock fright. This may be partly due to infantile fixations, partly to an unconscious attitude which interprets teasing as a disguised erotic approach.

PATHOLOGICAL LAUGHTER

We shall conclude this survey by a short remark about abnormal forms of laughter. The nervous giggle of adolescents and of persons in a state of acute embarrassment or under pressure of nervous tension, may be regarded as a transitional stage between the normal response to a comic stimulus and the pathological forms of laughter in which the channels of the discharge reflex are used for the abreaction of tension without appropriate stimulation. Pathological laughter may occur as a consequence of functional disorders, as in hysteria, or of structural disorders, as in certain types of brain lesions. (Cf. Head's thalamic syndrome, Chapter V.) In both cases it frequently alternates with hyperfunction of its twin discharge reflex, crying. The two discharge reflexes appear to serve as conditioned channels of least resistance for the disposal of nervous hyperexcitation caused by the release from conscious cortical control of the autonomic emotive centres. Pathological laughter may thus be classed among other forms of hypermotility—epileptic attacks, tantrums, tics—caused by similar release phenomena. The common denominator of pathological and normal laughter is the dissociation of thought and emotion, of the cortical and thalamic levels of function. But in normal laughter this dissociation is momentary, caused by a sudden jump of thought under the lash of the comic stimulus, while in pathological laughter the release of the automatic level is brought about by a functional or structural disorder.

The irrepressible nervous giggle and similar states of mild hysteria are, as we said, halfway between the two. In such overtense emo-

tive states every stimulus upon which a faintly comic character can be construed serves as a pretext for the discharge of some of the surplus excitation. Nervous laughter which sometimes occurs at the sudden *cessation of danger* is traceable to similar causes. The threat may suddenly reveal itself as imaginary; in this case there is bisociation between the real and the imagined, the realization that one "has made a fool of oneself." And laughter may serve as a partly spontaneous, mainly voluntary outlet for the persisting tension, added to, and serving as a cover for, the abreaction of trembling limbs.

HOW TO ANALYSE THE COMIC

Humour may be classified in a number of ways. The guiding aspect of the classification may be: (a) the quality of the emotional charge (sexual, overtly aggressive, malicious, and so forth); (b) the nature of the bisociated fields; (c) the nature of the junction (puns, comic of situations, and so forth); (d) narratives with a single junction as opposed to those which have a sustained bisociative character (witticism and humorous epic); (e) the degree of implicitness (rich versus dry humour, overt or riddle character).

But such classifications are of little help when we try to analyse a joke. The main difficulties in analysing a joke or comic situation are:

(1) that a joke may be a succession or *combination* of several comic patterns;

(2) that it may contain comic *symbols* which through indirect conditioning may act as comic stimuli per se and have to be reduced through a lengthy chain to the original bisociative pattern;

(3) that a verbal joke may depend on *visual* imagination; and,

(4) lastly, and this is the main difficulty, that the selective operator of one or both fields may be *implicit* or unconscious. In other words, they may contain laws of reasoning, or rules of associative selection, which were acquired empirically and remain unconscious with most people all their lives. By and large, people reason fairly logically, but the laws of logic and association, when explicitly

formulated, are incomprehensible abstractions to them. Thus, when two implicit rules of thinking clash in the comic, they become conscious of an incongruity without being able to formulate the cause of it.

A joke is "explained" when we are able to chart on a diagram the two fields, define the two selective operators, the junctional concept, and the emotional charge. The analysis should start with a preliminary survey under the angle of the specific factors mentioned under (1), (2), and (3). The procedure itself consists in separating narrative and flash, completing in explicit terms what is implicitly given, and thus arriving at a formulation of the rule or operator of the underlying field. This procedure may be demonstrated by the following example:

At the London Zoo a lady went up to the keeper of the hippopotami. "Tell me," she said, "is that hippopotamus a male or a female?"

The keeper looked at her in a shocked manner: "That, ma'am," he replied, "is a question which should only interest another hippopotamus."

Preliminary survey: the joke depends partly on the visual image of the hippopotamus, which is faintly funny by itself—a kind of exotic caricature of the pig, an aquatic Falstaff. Its name, too, is funny—foreign and tongue-twisting.

Analysis: narrative and flash are neatly separated into the lady's question and the keeper's answer. The implication in the *question* is that the lady takes a purely scientific interest in the sex of hippopotami; her matter-of-factness, the keeper's "ma'am," and the whole atmosphere suggest that she is a middle-aged, middle-class, homely and neutral type. The implication of the keeper's *answer* is that the question was motivated by the lady's improper designs on the hippopotamus. But this suggestion is given by a mere hint, which the reader has to complete by a half-conscious deduction as follows: the question should only interest another hippopotamus; the other hippopotamus' interest would not be of a scientific, but of a passionate nature; *ergo* the woman's question is of a similar nature.

This economy, that is, the faint riddle character of the joke, saves it from being purely gross. The component of half-conscious, aggressive derision of middle-class virtue and sexual hypocrisy needs no further stress. Thus F_1 can be described as the field of convention, with the implicit operative component of hypocrisy. F_2 is the field of biological instinct; the originality of the joke, though based on this well-worn type of bisociation, consists in the choice of the hippopotamus as a junction. Substitute a monkey, and the effect of the joke is destroyed.

SUMMARY

The necessary and sufficient conditions which define the nature of the comic stimulus are the sudden bisociation of a junctional idea or event with two independent operative fields, and the presence of a dominant aggressive component in the compound emotional charge.

The resulting abrupt transfer of thought[†] from one field to the other causes a momentary dissociation of parts of the emotional charge from its thought-context, and the discharge of this redundant energy in the laughter reflex.

Sustained humour results from a sustained bisociation of a character or situation. The narrative in this case moves through a series of junctional situations, oscillating between the two fields; its geometrical locus is on, or close to, their line of intersection. The continued oscillation of thought between the two fields results in a continued irradiation of redundant tension in mild amusement.

The three criteria of comic *technique* are:

- (a) the *originality* or unexpectedness of the bisociation;
- (b) facilitation of the recipient's re-creative process by the *relevance* of the stimuli (selection, exaggeration, simplification);
- (c) stimulation of the recipient's re-creative process by *economy*; that is, by the implicit riddle character of the text.

PART TWO

SELF-ASSERTION AND SELF-TRANSCENDENCE

Wilson and Child crushed the tissues of sponges and hydroids, sifted the cells through bolting cloth, and then observed their behaviour in water. At first independently suspended, they aggregated by settling or centrifuging. From flat sheets they then rounded up spherically, began to differentiate, and ended as adult individuals with characteristic mouth, tentacles, etc.

—F. DUNBAR, *Emotions and Bodily Changes*

*With a strong sober thirst, my soule attends
That All, which alwayes is All every where,
Which cannot sinne, and yet all sinnes must beare,
Which cannot die, yet cannot chuse but die.*

—DONNE, *La Corona*

*Those who refuse to go beyond fact
rarely get as far as fact.* —T. H. HUXLEY

VIII

Physiology of Crying

WEeping, like laughter, is a discharge reflex for surplus excitation. Although in certain situations the two may alternate or overlap, the emotional and cognitive processes in crying differ from those of laughter, and are in many respects their direct opposites. We shall begin with the physiological aspect.

In view of the many varieties of weeping—in grief, joy, pain, aesthetic rapture, and so forth—we have to start by isolating the characteristic features shared by all. The first is, by definition, the overflow from the tear glands. This is a reflex of a pure type, elicited either by local irritation to the eye or by emotions of a certain kind, and difficult to bring under voluntary control. It is mediated by the autonomic nervous system; but, while the reflexoid processes in laughter depend on the sympathetic division of the autonomic system, lacrimation is effected by the parasympathetic division, whose action is antagonistic to the first.¹ This fact may be of significance, and we shall return to it later on.

¹ The influence of the *sympathetic* division on the tear glands is not well established. The generally antagonistic action of the two divisions would lead one to expect that, as parasympathetic innervation leads to the shedding of tears, sympathetic innervation would inhibit it. But the evidence available tends rather to show that the sympathetic outflow from the upper cervical ganglion to the lacrimal gland is also secretory. This would represent the rather exceptional case of double innervation of a secretory gland by the two antagonistic divisions and may account for the two different emotional contexts of 'genuine' weeping on the one hand, and of lacrimal overflow in a prolonged laughing fit on the other. The latter would have to be regarded as a nonspecific manifestation of the diffuse mass action of the sympathetic system.

The second characteristic reflex feature is sobbing: a series of short, deep, sudden inspirations, followed by long sighing expirations with the glottis partially closed. In prolonged crying the sobs become spasmodic contractions. This is the exact opposite of the respiratory action in laughter, with its short sudden *expiratory* gusts (reversed sobs) followed by long intakes (reversed sighs). Again, the symptoms of sobbing point to parasympathetic innervation, though, in view of the extreme complexity of the respiratory mechanism, the evidence is not conclusive.²

Tears and sobbing are the only pronouncedly reflex characteristics of crying. Facial expression varies, as in laughter, with the emotional context, but in weeping *there is no specific reflex action of the facial musculature*. The most frequent emotional context of crying is grief, and accordingly we tend to believe that the expression of grief is an essential feature of crying. But in weeping from joy, or from a purely aesthetic emotion, the facial expression may be serene, rapt, hilarious, or altogether absent. One cannot laugh without a smiling expression, but one can cry without lowering the lip corners or producing any other typical facial muscular reflex. There is no *sous-pleure* corresponding to the *sourire*.

But if crying is a discharge reflex, relieving the body of surplus excitation, why is there no expression of relief shown in the face?

²Respiration is jointly controlled by somatic, sympathetic, and parasympathetic influences. Sympathetic innervation dilates the bronchi as an aid to the intake of air during emergency, while parasympathetic activity constricts the bronchi, and in pathological states leads to bronchial spasm (asthma). Now, the spasmodic inhalations of sobbing betray an effort to overcome the obstacle of a constricted passage; the gasping noises which appear after prolonged intense sobbing are rather similar to those produced by the "nervous" type of asthma and are caused by reflex spasm of the bronchi. The whole aspect of weeping seems to point towards parasympathetic (vagal) hypertonus.

The curious fact that a very violent fit of laughter may produce the sobbing type of respiration as an after-effect, whereas a violent fit of sobbing may be followed by smiling, but not by a laughing respiration, may tentatively be explained by the following consideration. The laughing fit would produce a sudden fall in the level of the adrenin content in the circulation and thus lead to a relative increase of parasympathetic tonus (a mild pseudoasthma attack). The irreversibility of this process is obvious to the physiologist, as the parasympathetic excitor hormones have no backstroke effect on the sympathetic ganglia.

And why does the discharged excitation not take the channel of "least resistance" in accordance with Spencer's theory? We shall come back to these questions after dealing with the last physiological aspect of crying, that of the accompanying bodily movements.

These again are markedly different from those in laughter. If it is typical for the laugher to "throw his head back" by a vigorous contraction of the elevator muscles it is equally typical for the weeper to "let the head drop" (into his hands, on to a table, or on somebody's shoulder) by relaxing the elevators. Laughter tends towards violent and diffuse muscular movement, the throwing about of the body, contraction of the fists, banging of the table or slapping one's knees, typical attempts to work off the galvanizing effects of sympathico-adrenal excitation. In crying, these symptoms are absent; on the contrary, the body tends to relax, slump, sag, to "break down" in weeping. The shaking shoulder movements in convulsive weeping appear as mere amplifications of the spasmodic respiration, as in a coughing fit, but manifestations of the typical diffuse "movement for movement's sake" of laughter are absent. They appear in hysterical crying, or when crying alternates with outbursts of rage; but they are adventitious accompaniments of the basic process.

This short comparison of the physiological aspects of crying and laughter may be summed up as follows. Laughter is an explosive process in which emotional tension is annihilated by respiratory "puffs" and bursts of muscular activity along channels of least resistance, while in crying, surplus tension is discharged through specific channels (lacrimation and sobbing) in a much slower, more gradual manner. Laughter is accompanied by the pleasurable sensation of sudden and complete relief from tension; in crying, on the other hand, the discharge is gradual and incomplete and does not necessarily interrupt the simultaneous generation of further tension, so that the relief may remain under the threshold of what is experienced as a pleasurable state. Finally, the whole complex of sympathico-adrenal excitation which characterizes laughter is not only absent in crying, but is replaced either by parasympathetic excitation, or at any rate by types of reaction, for example, fatigue,

which are the direct opposites of sympathetic excitation. Since sympathetic excitation is known to express the hunger-fear-rage type of impulse, we shall expect that the tension discharged in weeping is caused by a *qualitatively* different category of emotions.

We called the first type, which prepares for fight or flight, the self-asserting emotions. The second type of emotions, with its physiologically opposite manifestations, we are as yet unable to define, or even to qualify by their common features. Wary of dualistic generalizations, even of such tempting ones as Freud's Eros and Thanatos, we shall wait until their characteristics gradually emerge in the course of our analysis. Meanwhile we must bear in mind that all emotions consist of "mixed feelings," that is compounds of various and sometimes antagonistic elements. Thus rage, which belongs to the aggressive, sympathico-adrenal category, appears sometimes to be associated with crying; we shall come back to this point in the next chapter.

If the physiological mechanisms of laughter and crying suggest that the emotional impulses which they serve to discharge are of a contrasting character, common observation draws the same conclusion in associating laughter by and large with a joyous and faintly aggressive, crying with a depressed and pitying or self-pitying mood. (Even so-called "crying for joy" has an emotionally different climate from laughter.) The reasons why laughter is joyous and aggressive have been dealt with both from the psychological and physiological angles. The psychological aspects of crying will be discussed presently.

IX

Psychology of Crying

WE SHALL examine a number of typical situations in which crying may occur.

1. When listening to music or contemplating beautiful scenery, emotion may well up and overflow "through the eyes" without any gesture or facial change, the body remaining perfectly still and relaxed. This state is accompanied by a sensation of expansion and "depersonalization" of consciousness, the self becoming dissolved, as it were, in the music or landscape. It is closely related to religious experience, to Freud's "oceanic feeling"—the "notion of limitless extension and oneness with the universe."

In contrast to the self-asserting emotions, this type of emotive experience tends to beget *not action but passivity*. It is accompanied by slowing down of respiration, lowering of muscle tone and of the basic metabolic rate. In some cases the feeling of the "blending of the finite with the infinite" is so intense that it leads to the vague wish "that I could die now." But there is nothing masochistic in this—only a tendency towards complete, vegetative quietude, the draining away of all tension.

It should be noted that the discharge reflex in this case does not abolish the continuity of the mood, as in laughter. The tension ebbs away gradually; the "redundant" emotion is disposed of without being dissociated from thought, as in laughter; the two remain in harmony to the end of the process.

2. A woman is notified of the sudden death of her husband. At

first she is unable to believe it, is stunned by the shock; then she finds temporary relief in tears.

The discharge mechanism in the process is again obvious. The gradual realization of the loss causes the surging-up of a vast amount of emotion which finds no outlet in any purposeful activity. If the emotion in question were of the aggressive, rage-fear type, the body would react through the sympathico-adrenal system, in preparation for fight or flight. But in the situation under discussion, the main feature is that "nothing can be done," and the emotion roused thereby is, as in the previous example, of the type which tends to beget not action but passivity. This is expressed in the resultant behaviour of the woman and in the stock phrases which express it: "letting oneself go," "giving in" to grief, "breaking down," and so on to the extreme forms of depression and melancholia.¹

In trying to analyse more thoroughly the woman's emotions, such words as "grief," "sorrow," "mourning," "pain" are not very helpful, as all refer to emotional compounds which can be further reduced. We know that "mourning" may contain a good deal of subconscious aggression, that sorrow may be a source of indirect satisfaction, and so on. Nearly three centuries before Freud, Donne realized that "for some—not to be martyrs is a martyrdom." Whether the crying woman loved her husband or disliked him, whether her grief is partly or entirely genuine, whether she derives indirect satisfaction from it or not, we are unable to decide; and as all these factors vary from case to case, they cannot express the core of the stimulus for crying. The one outstanding and constant factor in all variations of the situation is that the crying woman has *experienced a loss*. The subjective value and meaning for her of what she has lost is

¹ The word "emotion" is derived from "motion," and so an emotion which tends to beget passivity seems a contradiction in terms; which may be one of the reasons why nineteenth century psychology only took the hunger-fear-rage type of emotions seriously and disposed of the others by the vague term of "moods." The historical reasons for their neglect will be discussed later (Chapter XV). Incidentally, it may be noted that the very type of aesthetic experience which is commonly called "moving" is the one which tends to beget contemplative passivity.

merely a secondary qualifying factor to this statement that the experience of suffering a loss has occurred.

Now the experience of a loss implies the experience of prior possession—or more precisely that of a relatedness by belonging to, or belonging together. It may sound paradoxical to say that the woman “possessed” her husband or that he “belonged” to her if the husband happened to be a bully and the wife a timid mouse. But nevertheless the expression “*my* husband,” “*mon* homme” reflects truthfully the woman’s experience. In the legal field “possession” implies that I can do with the thing possessed more or less what I like. But in the psychological field it means something quite different. I “have” the Gaelic, a country is “my” fatherland, my wife “belongs” to me; and though I have little real power over these possessions and perhaps no influence on them at all, their loss is nevertheless experienced as a real loss, an impoverishment of the self. In acute cases such loss is experienced as a “wrench,” as if a limb had been amputated, as a deprivation of something which was part and parcel of the self. The psychological experience of possession seems to signify that an outside object, or certain aspects of it, were in some way incorporated into the self or “introjected,” to use the Freudian term. Metaphorically speaking, the boundaries of the self have been extended to include the outside object, or some aspects of it.

But, as will be seen, this description is not entirely metaphorical. The individual is neither structurally nor functionally a discrete unit with sharp boundaries, but in constant symbiotic interaction with his environment. At what stage of the physiological process the food or air taken in becomes part of the self is obviously a matter of definition. Less obvious but no less real are the structural processes, which make old married couples develop a physical resemblance, or the functional interactions of hypnotic and telepathetic rapports. Even such common phenomena as the unconscious adoption of another person’s accent or mannerisms represent modifications of the functional self by the incorporation, that is, partial introjection, of alien functional patterns. Mental symbiosis is particularly vivid at

primitive levels where the boundaries of the self are still fluid and uncertain, and is at the basis of what is called "sympathetic magic"—the leitmotif of experience in the primitive and the child. In psychological terms these processes are variously referred to as "identification," "projection," "introjection," "transference," "sympathy," and "empathy," according to their various aspects. Even Freud, who regards them as regressions from higher to lower functional levels, admits that they might be the very clue to "our understanding of other personalities, of the nonself by the self." We shall reserve a more thorough discussion of these identificatory processes for a later chapter, and at present merely note that they manifest themselves as a varied group of emotions with the common tendency of expanding the range of awareness beyond the limits of the self, or, conversely, of being aware of the self as part of a higher functional whole. We shall call this tendency the "*integrative*" or "*self-transcending*" tendency, and those emotional processes which it dominates we shall call the *integrative* or *self-transcending emotions*, as opposed to the self-assertive, aggressive-defensive type. It should be made clear at once that this distinction is based on no mystical assumptions, nor is it meant to introduce any metaphysical, dualistic conception. Rather, as will be seen, the terms self-assertion and self-transcendence are meant to refer to the functional polarization of tendencies in one unitary organismic process in the same way as biological differentiation and integration may be regarded as functional polarities of the same developmental process.

We may now return to the weeping woman who has lost her husband. We said that, regardless of what her feelings towards her husband as an outside object of desire, friendship, or resentment had been, her crying is caused primarily by the loss of a part of her self (or, conversely, by the decomposition of a higher integrative whole of which she was part), that is, the loss of a relation which had up to now, however imperfectly, satisfied her self-transcending tendencies. In Freudian terms we should say that her crying is not caused by the end of the object-relation (cathexis) to her husband, but of her identificatory relation to him. In fact, in all object-

relations into which the two partners entered for mutual advantage (sexual, economic, and so forth), the loss is replaceable. It is only irreplaceable with regard to those relations in which the independence of the self was given up, where a "belonging to" by projection or introjection took place (for example, vicarious experiencing of the other's pain or pleasure, and similar situations of symbiotically shared experiences whose ensemble forms a common pool of habits and memories). As further examples will show, the emotion discharged in crying can always be reduced to the experience of some form of loneliness, the isolation of the self from some higher integrative whole. We cry because we are left alone and can do nothing about it; we laugh because we are not left alone and can do nothing else about it.

3. A woman in a state of chronic anxiety about her son whom she believes to be at the front, suddenly sees him walking into her room, safe and sound. Again, the first reaction is one of shock and rigidity, then she flings herself into his arms, *alternately laughing and crying*.

Let us first examine the reasons for her crying. The sudden appearance of her son causes in the mother not only relief from her conscious anxiety, but a parallel process of the flooding of her consciousness by hitherto repressed components of that anxiety. The conscious relief may be verbalized as "thank God you are not dead"—but the idea that he *might* be dead would not have been admitted into consciousness a moment before. Up to now she had forced herself to be "courageous," that is to banish from consciousness the threatening images of what might be happening to her son on the battlefield. Now she can let herself—and her emotions—go. Hence the manic display of hugging, bustling, calling in the neighbours and upsetting the teakettle, which alternates with moments of relaxed rapt calm and the shedding of tears. The alternation and overlapping of these two patterns show that there are two emotive mechanisms at work: the first is one of hypermotility, the working off of a galvanizing excitement of the sympathico-adrenal

type. The calling of the neighbours to show off to them, the violent hugging and bustling are manifestations of the self-assertive component in the compound emotion called "tenderness"; in these the son appears as an external *object* for (emotive) use. The second mechanism is the quiet overflow of the self-transcending component of emotion, which cannot be consummated in any overt bodily action. In fact, this component of maternal tenderness could only be completely satisfied by reestablishing the past stage of symbiotic unity: if the son could regress to the cradle, the breast, nay, back into the womb. (The corresponding self-transcending component in the sexual relation is, as will be seen, the depersonalization (*la petite mort*) of the orgasm, the craving to be completely "taken" and "possessed," for the extinction of the ego and its becoming one with the other.)

By comparing situations (1), (2), and (3), we find that, though their patterns seem to be entirely different, and (2) and (3) even directly contrasting, the common denominator is the discharge of a surplus of integrative emotion which cannot be satisfied by any specific action. In situation (1) the integrative tendency is directed towards the "oceanic" experience in which "the boundaries of the ego seem lost and the subject feels at one with the whole world"—a state which can never be completely attained; a residue of self-attachment, of isolation, and aloneness remains. In (2) it is directed towards a self-transcending union not with the universe, but with a partner—which is frustrated by death. In (3) we again find a craving for dual integration, frustrated for a reason different from (2), but similar to (1): that subtler form of the ultimate loneliness of the individual even in the acts of tenderness, of social or sexual communion, which is one of the eternal themes of poetry and fiction. An indissoluble residue of individuation prevents the self-transcending impulse from ever being completely satisfied, and the mother can do nothing about it but let it overflow in tears. They are "joyous" because they bring pleasurable relief; the widow's are painful because the gradual relief is constantly defeated by renewed violent surges of emotion. In all three cases the tendency of the emotive im-

pulse is towards self-abandonment in some form of integration—the direct opposite of self-assertion, of the jealous delimitation of the ego and its rights.

But why does crying alternate with laughter in (3)? Because “tenderness” contains, as we saw, a self-assertive component, which will either express itself in bustling activity or, under specific conditions, in laughter. These specific conditions are expressed by such typical exclamations as “What a fool I have been to worry so much” or “How silly of me to cry.” We recognize in them the familiar situation where the narrative of the woman’s anxieties is cut short by the flash of the son’s sudden appearance. She is still “unable to believe her eyes,” that is, the palpable appearance of the boy in the room is bisociated with her mental image of him wounded or dead a hundred miles away. By abruptly transferring her thoughts from the field of imagination, in which she has lived for months on end, to that of reality, the self-asserting component in her emotion becomes separated from thought and is discharged in bustling and laughter. In the exclamation “What a fool I have been!” it is not difficult to detect a mild reproach, an unconscious resentment against the cause of so much needless worry who is standing in her room, sunburnt and grinning, unaware of all the suffering he has caused; the real meaning of the explanation is: “What a fool you have made of me.” It is this admixture of faint aggression which makes part of the emotion dischargeable in laughter or nervous giggling. A moment later, however, the memories of past anxieties return, and the inner narrative is resumed: once more she “can’t yet believe her eyes,” and the cycle starts again. Only gradually is her grasp of the situation established by successive flashes of insight and the emotion worked off.

“Laughing through one’s tears” is always caused by such quickly oscillating mental states, where thought and emotion are alternately united and dissociated. For the second time we meet here an affinity between laughter and mental disorder.

A shock which necessitates violent emotional readjustments always entails oscillatory phases of transition until a full grasp of the situa-

tion is reached. In situation (2), where the shock is the loss of the husband, this oscillation takes the form of despair alternating with periods of disbelief in the new situation. The persistence of the pre-shock emotion, which in situation (3) makes the woman disbelieve her eyes, makes her in situation (2) disbelieve the *news*; while in (3) she continues to act as if the boy were still in danger, in (2) she will continue to act as if the husband were still alive. But while in (3) the successive flashes of reality which disrupt the field of illusion bring happy relief, in (2) each flash of reality brings renewed despair. In the case of a person with psychotic disposition, the field of illusion will resist disruption and the field of reality be disrupted instead. The hollowness of insane laughter echoes the effort to reverse the fields, to withdraw the mind from the world of fact by crushing the resistance of the reality principle with its strong habit-conditioned operator; the effort of going mad in the teeth of a world that is sane.

In discussing situation (1) we saw that in crying, unlike laughter, the surplus emotion is discharged gradually, and the continuity of mood, that is the harmony between thought and emotion, persists until the process is completed. Laughter can only occur as a consequence of a sudden bisociation of thought which leads to its separation from emotion; in the situations which we discussed in this chapter there was neither bisociation of thought nor separation of thought from emotion as a cause of crying. (Where bisociation occurred in example [3], it gave rise to laughter, not to crying), Crying is intellectually a much more naïve manifestation than laughter; no double meaning, no double context, no sophisticated intellectual geometry of the stimulus are required to cause a discharge of the self-transcending emotions. In other words, laughter is a substitute for emotional activities, while crying is a specific consummatory activity in itself.

Intellectually, laughter has a bisociative, crying an associative geometry of a primitive type. This raises the question as to what happens when the self-transcending emotions are canalized into a

bisociative pattern. The answer is given in Part IV of this volume, where poetry and art are considered as bisociative patterns of emotional self-transcendence. At present we are concerned with the simpler forms of the self-transcending emotions, and their direct expression in crying.

4. Crying in sympathy is the most frequent cause of crying in women either of the naïve, softhearted, motherly, or of the highly strung, sensitive types. In both cases the tendency towards self-transcending identification is marked, and serves as a *vehicle* for the vicarious sharing of emotion; it is absent in the self-assertive, active, masculine type. It should be noted that identification may be in itself either a *direct* satisfaction of the integrative impulse (as between lovers or members of one clan) or, as in the present example, serve in addition as a vehicle for vicarious emotions. To have a good cry at other people's sorrow, or at the cinema, is highly gratifying for the simple-minded person's self-transcending cravings; by crying at the other's expense, as it were, he becomes an emotional parasite.

5. A little boy is bullied by bigger ones. For a while he tries to fight back, to hit, scratch, and bite, but his tormentors' grip immobilizes him and the child begins to cry in "impotent rage."

The last two words appear in inverted commas because the expression is misleading. Whoever has observed child behaviour will agree that crying will start only *after* the victim has given up his struggling and wriggling, has "given in" and let his body slump; that is, after the rage has abated and its galvanizing mechanism been worked off. Later on, renewed outbursts of rage may alternate with crying, but each time the struggle is renewed, crying is interrupted. The crying is not an accompaniment of rage (except where the two phases overlap), but alternates with it. The dominant emotion during crying is the experience of helplessness, of being abandoned, left alone with the superior hostile powers—that is, again of *loneliness*. But loneliness, as in the previous situations, is merely the experience of isolation of the self, the frustration of its need for

sympathy, love, comradeship, or whatever form the integrative process would have to assume in the given situation.

6. A small child running over a gravel path stumbles and falls. For the fraction of a second it is dazed by the shock; then it begins either to cry or to laugh.

In this situation we have to distinguish between the effects of the fright and the pain. We shall examine the effects of pain first. "Crying in pain" is an expression as misleading as "crying in rage." During violent bodily pain the organism is fully occupied in coping with the emergency; it cannot afford to waste any energy in the discharge mechanism of crying.

Great pain urges all animals, and has urged them during endless generations, to make the most violent and diversified efforts to escape from the cause of sufferings. Even when a limb or other separate part of the body is hurt, we often see a tendency to shake it as if to shake off the cause, though this obviously be impossible. Thus a habit of exerting with the utmost force all the muscles will have been established whenever great suffering is experienced.²

Darwin's description of the overt behaviour in pain may be complemented by Cannon's ³ finding that the neurochemical process in pain is an emergency reaction of the sympathico-adrenal system, identical in its basic features with the effects of fear, rage, and hunger. We conclude that violent pain is always experienced as an aggression, regardless of whether it is inflicted by an outside agent or not. If the aggressor be a tooth, or a cramp in the bowels, we say "*it hurts*," thus distinguishing between the hurting cause and the suffering ego; hence the defensive reactions of writhing, shaking the limb, pressing against the tooth, and so forth in order to get rid of the aggressor; animals may even gnaw off the offending limb. But once the pain has ebbed down to a steady, dull level, the reaction becomes a different one. We "*have a headache*" and we "*have heartburn*,"

² Darwin, Charles, *op. cit.*

³ Cannon, W. B., *op. cit.*

thus identifying the ego with the pain, and implicitly admitting that nothing can be done about it. Writhing, shaking, and so forth cease; the body relaxes in the admission of defeat, just as the little boy does in the grip of his tormentors. As in the previous situation, crying "in pain" starts at the precise moment when the specific pain behaviour stops, and for precisely the same reasons: the feeling of helplessness, of being abandoned and left alone with one's pain. Again we have the basic experience of yearning for sympathy, comfort, and love—which, however, are unable to break down the isolation of the suffering self. We may also say that, both in apparent crying "in rage" and crying "in pain," the real cause of crying is self-pity; the frustrated need for loving integration is deflected upon the self.

We now come to the effect of the *fright* caused by the child's fall. As in the previous situations of rage and pain, crying will start *after* the acute fright and specific fright behaviour have ceased. The child's crying means not "I *am* frightened," but "I *was* so frightened and now I want to be comforted." The overt fright behaviour of the very small child, for whom flight is impossible, consists in straining away from the threatening apparition, in an uncertain lifting of the hands for protection, and the facial expression of fear. Crying starts when these strains are relaxed, though, as in the previous cases, the two phases may overlap. The neurohormonal excitation may persist for a while like the dulled-down pain, and ebb away gradually after the open fright behaviour has ceased; in which case, the crying should be verbalized as: "I was so frightened and am still a little, and what I mainly want now is to be comforted."

In the case of the little boy falling on the gravel path, the specific fright reaction lasts from the instant of stumbling to the completion of the fall. The threat consists in the sudden approach of the hard earth, the reaction in the protective outstretching of the hands, in the straining away from the contact during the fall, and in the horrified facial expression. Once the contact with the earth is made, the second phase starts: after a transitory moment the body relaxes, it is recognized that nothing more can be done to escape the crash, and

as defeat is admitted and the acute scare gradually ebbs away, the facial expression changes from fear to the sympathy-begging grimace of crying. Again, where pity is denied, self-pity will provide the stimulus for the overflow.

However, having recovered from the immediate shock of the fall, the little boy, instead of crying, may laugh. This will depend on the behaviour of the mother or nurse, and on the conditioning of the child by their behaviour on previous similar occasions. If the mother makes a fuss and betrays her anxiety, this will increase both the child's craving for tenderness and its self-pity; the result will be tears. If, however, she succeeds in conveying that there is no reason for fright and that the pain is negligible, in other words, if she debunks the drama, then, after a moment of puzzled doubt, the child may break into a rather hesitating laugh. In this case the remaining after-effects of pain and fright excitation become dissociated from reason, which denies them, and are discharged in laughter; while the sympathy-craving emotions are inhibited by the grownups' detached and resolute behaviour.²

7. Finally, "crying in hunger": that it is not caused by the experience of hunger itself, but by the experience of isolation (from the breast or its substitute, the bottle) should be sufficiently evident from the fact that, after the age of bottle feeding, hunger, however intense, is never expressed by crying; and furthermore, that crying in babies instantaneously stops when the bottle or breast is given or even appears in sight, before the hunger can have ceased.

Crying in babies may however *signal* hunger (without being reflexly caused by it) as a method conditioned by experience to attract attention and cause feeding. But in this and similar cases we are no longer dealing with "genuine" crying as a discharge-reflex, but with a secondary, conditioned form, that is, a signal to attract attention, pity or help. Such instrumental crying may

² We may note in passing that the old nursery habit of inciting the child to punish the object on which it has hurt itself, unconsciously aims at working off the adrenal residue of fright in incipient rage behaviour.

itself become automatic as a response to conditioned stimuli, or be the result of a voluntary effort in imagining certain stimuli. But as the tear glands are beyond the reach of voluntary, cortico-motor control, crying is more difficult to imitate than laughter and requires a much greater effort through a detour of imagination.

To sum up: crying is a discharge reflex for redundant or frustrated self-transcending emotions, as laughter is for the self-asserting emotions. Unlike laughter, the discharge is a gradual process in which the continuity of mood is preserved and no separation of thought from emotion occurs. The intellectual aspect of crying is simple and direct; it is based on no bisociative pattern: thought remains in one operative field. The surplus or frustration of the self-transcending tendencies gives rise to the emotive experience of loss, loneliness, or separation from an integrative whole, of confinement within the narrow boundaries of the ego—which, again in contrast to excitation of the self-asserting tendencies, cannot be remedied by overt activity.

X

Biological Foundations of the Integrative and Self-Assertive Tendencies

IN THE previous chapters a distinction was made between self-assertive (aggressive-defensive) and self-transcending (integrative) tendencies of emotional behaviour. We were led to make this distinction partly by our interpretation of observations in the psychological field, and partly through the unilateral physiological correlation of aggressive-defensive behaviour with the sympathico-adrenal system.

None of these considerations, however, provide a sufficiently sound foundation for such a broad and generalized distinction, which, furthermore, may give the entirely erroneous impression of a dualistic bias. We shall only feel firm ground under our feet if our tentative assumptions can be correlated with relevant processes in organic development. This attempt will necessitate a detour to consider certain contemporary trends in biology. The next few chapters are devoted to this excursion, and are followed by a short study of the behaviour of social wholes and of the relations of the individual to his natural and social environment. Our theme in its narrower sense, that is, the continuity of the creative processes in humour, discovery, and art, will be resumed in Part Three.

Apart from the necessity of establishing a more solid biological and social foundation for the theory here presented, it is hoped that the reader will find the subjects touched upon in passing not without interest in themselves.

THE FREUDIAN INSTINCTS

Psychology as a young science has to ax its way through a terminological thicket of emotions, impulses, instincts, needs, drives, and so forth. Köhler points out with some reason that had Galileo, Newton, and Huygens been too much preoccupied with the epistemological purity of their working concepts of gravitation and energy, instead of going ahead in a "pragmatically naïve and happily undisturbed"¹ way, physics would never have become a science. Freud is of the same opinion:

Zoology and botany did not start with correct and adequate definitions of the plant and the animal, and biology is even to this day unable to give the concept of life a definite meaning. . . . The basic concepts or guiding ideas in the disciplines of science are at first always left vague. . . . Only through the progress made in analysing the material under observation can they become meaningful and free of contradiction.²

And in *Beyond the Pleasure Principle* he further mentions that the language of psychology must necessarily remain metaphorical and unsatisfactory, "until we shall be able to substitute the proper physiological and chemical terms for them. Though the latter are also metaphorical, they are at least more familiar and perhaps also simpler."³

We shall therefore make at present no attempt to arrive at water-

¹ Köhler, *Gestalt Psychology*, p. 25.

² Freud, *Selbstdarstellung*, p. 82.

³ Freud, *Jenseits des Lustprinzips* (Imago Edition), p. 65. Needless to emphasize that this inevitable looseness of terminology in the early stages of any branch of science often avenges itself later on. But it seems a historically undeniable fact that as long as all goes well with a young science it does not bother about semantics and epistemology; as a rule the scientist will only call in the philosopher to his sickbed when there is a crisis in the laboratory. Inorganic chemistry never had to do that, nor astronomy until the Relativity crisis, nor physics until the causality crisis. Of course the philosopher, when called to the patient's sickbed, will always say that the germs of the disease had been there for years unobserved and that he should have been called earlier; but a robust youth will not lead an aseptic life, and a rapidly progressing science cannot always watch over the semantic purity of its terms without a paralysing effect on its growth.

tight definitions, and shall be content to note that by general consensus and common observation, emotions are somehow derived from instincts—that is, hereditary dispositions of the organism to react to specific excitation patterns by specific behaviour patterns, which, however, may be modified by individual experience. By the mere listing of such instincts little is gained for our understanding. McDougall, for instance, lists fourteen “irreducible major instincts” (including “appeal,” “acquisition,” “laughter,” and so forth), not to mention such “minor instincts” as defecation, micturition, and sleep. Obviously if the why and how of human experience is to be understood in its biological and cosmic context, a further reduction to more universal principles is needed. This further step leads us from “instincts” in the traditional, descriptive, and classificatory sense, to the “primary instincts” in the Freudian sense. The Freudian *Triebe* (more correctly translated by “drives” than “instincts”) number only two, and are conceived as mutually antagonistic universal tendencies inherent in all living protoplasm.

Like Hegelian dialectics, or Spencer’s Law of Evolution from the Homogeneous to the Heterogeneous, Freud’s system represents one of the periodically renewed attempts which mark like milestones the successive expansions of the horizon of science, to establish methodological continuity between all levels of the evolutionary hierarchy. Freud’s advantage over his predecessors was that he lived at a time when advances in biology and psychiatry led to the first contacts between their hitherto separate fields and made a bisociative psychosomatic approach possible. His genius enabled him to grasp the opportunity; his handicap was that he found the junctional link in pathology. Steeped in the study of morbid behaviour, he took, when drawing his metapsychological conclusions, a rash short cut from the pathological extreme to basic protoplasmic processes, omitting the vast intermediary range of individual behaviour in healthier civilizations than our own, and of animal psychology, in which he took little interest. The consequence of this is that both Freud’s fundamental drives are conceived as purely *conservative* and *regressive*. An analysis of the relevant passages (in *Beyond the Pleasure Principle*, *Civil-*

ization and Its Discontents, and so forth) reveals that the hypothesis of the regressive nature of the basic instincts is not derived from empirical evidence, but is based on speculation whose trend is obviously biased by a life-long study of clinical material with pronounced infantile fixations and regressive tendencies.

Both Freudian drives aim at the restoration of a *status quo ante*: Eros, through the lure of the pleasure principle, tries to reestablish the protoplasmic unity of the primeval slime; Thanatos aims directly at annihilation and self-annihilation, that is, a return to the inorganic state. As both are engaged on turning the clock of evolution backwards, one wonders how it came about that it move forward nevertheless. Freud's own answer to this question can only be found in a short passage in *Jenseits*: the Eros drive, intent on reestablishing the unity of the primeval protoplasm, forces the "dispersed fragments of living substance (by some mechanism analogous to chemical affinity) to achieve a multicellular status, and finally delegates to the germ-cells the drive for re-union in highest concentration."⁴ But this mutual attraction between bits of protoplasm would at best only account for the *aggregation* of primitive cell colonies, never for the processes of *differentiation* and *integration* which determine the emergence of higher evolutionary forms.

As to the evidence for the conservative, regressive nature of both drives, Freud says:

I might be asked whether and to what extent I myself am convinced of these hypotheses. My answer would be that I am neither convinced myself nor trying to convince others. More exactly: I don't know how far I believe in them. . . . Surely one might follow up a line of thought out of pure scientific curiosity, or, if you like, as the devil's advocate, without for that making a pact with the devil about it. I am not unaware of the fact that the third step in the Theory of Instincts which I am taking here cannot claim the same certainty as the two previous ones. . . . The assertion of the *regressive* character of the drives rests nevertheless *also* on observed material; namely, on the fact of repetition-compulsion. However, I have perhaps over-estimated its significance.⁵

⁴ *Jenseits des Lustprinzips* (Imago Edition), p. 63.

⁵ *Ibid.*, p. 64; my italics.

I have quoted this passage (which could be supported by others) for two reasons: first, to show that Freud himself was fully aware of the flimsiness of the evidence for the regressive nature of the drives (the phenomenon of repetition-compulsion could be interpreted in at least half a dozen other ways), and, secondly, to show that Freud took the whole hypothesis less seriously than some of his orthodox followers.

The necessary rejection of the Freudian metapsychology does not diminish the epoch-making significance of his pioneer work; rather it rids the Freudian system of the burden of a subjective philosophy and its gratuitously antihumanistic aura.

THE PART AND THE WHOLE

If we discard the assumption that Eros is a regressive force and that the hierarchy of more and more complex levels of organization is merely a long and forced detour with the final aim of returning to the primeval slime—in other words, that evolution is the product of *inhibited regression*, the negation of a negation, a backing forward, as it were—if we discard these gratuitous interpretations, then Freud's Eros appears as nothing more nor less than the general principle or trend of evolution towards more complex, statistically more improbable integrations of life substance. To avoid the burden of associations connected with terms like "Eros," "Libido," "Life Instinct," we propose to call this principle or trend the "integrative tendency." What its causes or aims are we do not know, for the question is synonymous with that of the meaning of life; we hold it to be an irreducible datum of observation.

To explain the integrative tendency in evolution by adaptive necessities means arguing in a circle; for explanations of this kind beg the question why living protoplasm should maintain itself by a series of more and more complicated and physically more improbable adaptations to environment, instead of reaching inorganic, thermodynamic equilibrium, that is, dissolving in it; after all, the simplest adaptation is to die. Thus, if we wanted to reduce the integrative tendency to a more basic principle, we would have to introduce a

subsidiary law of specifically *organic* adaptations, or a law of accumulation of negative entropy, or vitalist entelechies, or the like, which leads to a receding series. In the always heuristic choice of "ultimate" or "irreducible" principles, the choice of the integrative tendency recommends itself among other reasons by the fact that its validity can be extended into the realm of the inorganic, at least down to the crystalline level, and upwards into the realm of social phenomena.

Obviously the term "integration" is meaningless if it does not refer to some integrants, component parts, which are united by the process of integration into a functional whole. If the parts are homogeneous—as in primitive cell colonies—we speak of aggregation, not integration. Integration implies heterogeneity of parts, and the higher we mount in the evolutionary scale, the more differentiated or specialized these become. Nor is integration to be understood as the summation or growing together of separate components; the development of the germ cell into the completed organism shows at every step that differentiation of structure and integration of function are related aspects of one unitary process.

When the differentiative-integrative process is completed, this double aspect of development is continued as the relation of part to whole in the mature organism. The part has to maintain its individuality, otherwise the organism would lose its articulation and revert to amorphous homogeneity; at the same time, it has to behave as a *part* in the whole, that is, in functional subordination. Now the individuality of the part consists in its being itself an integrated whole of a lower order—a sub-whole composed of sub-parts, which in themselves are sub-wholes, and so on. In this organic hierarchy the functional units of each level are all Janus-faced, as it were: they are wholes when facing downwards, parts when facing upwards. On the upper limit of the hierarchy, the same double aspect holds; the individual animal and man are organic wholes relative to their body, but parts of the higher integrative unit of the herd, insect state, family or society. Downwards the hierarchy extends through the colloidal and crystalline to the atomic and sub-

atomic levels. The so-called "elementary particles"—electrons, photons, neutrons, mesotrons, and so forth—may probably be regarded as different patterns of energy concentrations, as differentiated wholes on the lowest structural level.

The concept of the "functional whole" is defined as the pattern of relations between its parts, and not as the mere sum of its parts. Mere summational aggregation of parts does not lead to the formation of functional wholes. A heap of coal dust does not behave as a functional whole, and whatever its size, its integrative hierarchy reaches its upper limit on the crystalline level.

In the evolutionary hierarchy, each level has its own set of integrative laws, or "organizing relations"; on each level these are more complex than on the previous one. They imply the laws of the next lower level (as, for example, biology implies the laws of chemistry, which in turn imply those of physics), but they cannot be reduced to, or predicted from the lower level. Hence a thing or part will enter into different relations and behave in a different way according to the integrative laws to which it is submitted: an atom of carbon will behave differently in a heap of coal dust, in an inorganic compound, or in a protein molecule. In short, "the organism in its totality is as essential to an explanation of its elements, as its elements are to an explanation of the organism."⁶

This emphasis on the integrative power of the whole over its parts is a result of converging trends in biology, embryology, tissue culture, neurology, and psychology. It has almost entirely replaced the last century's mechanistic and atomistic conceptions; it is variously called the holistic or organismic or Gestalt approach. It seems, however, that its implications for a biological foundation of the theory of instincts have not yet been fully explored, and this section is meant as a step in that direction.

The new emphasis on "wholeness" has somewhat obscured the fact that the parts, too, have their say in the organism and sometimes assert themselves in an unpleasantly independent way. Under

⁶ Ritter, W. E., *The Unity of the Organism*, quoted from H. F. Dunbar, *Emotions and Bodily Changes* (New York, 1946).

normal conditions (that is within the usual standard range of environmental excitation) there is no manifest opposition between the two functional aspects of the organism's components, that is, between their persistence as individual sub-wholes on the one hand, and their subservience as parts on the other, although this subservience frequently implies the inhibition of functions which would be exerted by the part under conditions of autonomy. In fact, the dominant influence of the whole over its parts seems to be primarily one of controlling and restraining the latter's potentialities. This process starts at the very beginning of embryonic growth. As there is little reason to doubt Morgan's statement that "each cell inherits the whole germ-plasm,"⁷ that is, all its hereditary potentialities, the main regulative principle of early development seems to be the selective inhibition of unwanted potentialities of cells according to the position which they occupy in the physiological gradients of the growing embryonic pattern. Thus, every single cell of planaria is capable of developing into a head; and it will in fact develop into a head even if it has previously served in the animal's tail end, provided that a segmental cut just in front of the cell in question liberates it from its servitude and puts it at the head end of the remaining posterior fragment. In the higher evolutionary forms this latent omnipotence of the cells is gradually extinguished with their increasing specialization, and in the mature organism even growth by division ceases; but *inter alia* the occurrence of malignant growths proves that the potentiality is not entirely extinct.

Higher up in the evolutionary scale the functional duality of organs as subordinate parts and as powerful sub-wholes becomes more and more evident. The inhibition of short reflexes, the competition of stimulated nerves for the final common path, the continuous restraint exercised by the cortex on the lower nervous centres and particularly on the emotive centres and their endocrine allies, the intricate regulations of digestive chemism, of metabolism, postural tone, and so on, all show the delicacy of the task of coordinat-

⁷ Morgan, T. H., *The Physical Basis of Heredity* (Philadelphia, 1919), p. 241.

ing these various functional sub-wholes. This task is performed by coordinating centers on various levels, which may be regarded as the loci of the integrative principle operating on that level. Thus a certain region near the sinus end of the heart controls the rate of beat, and similar "pacemakers" function in the stomach, the ureters, and so forth, as coordinating centres on levels much lower than the cerebral. An organism is said to function normally, or to be in a state of *dynamic equilibrium*, when all of its organs perform their specific functions as sub-wholes while at the same time submitting to the regulative control and restraint imposed by the next higher integrative centre.

As already mentioned, under normal conditions "partness" and "wholeness" do not appear as opposite tendencies, merely as related aspects of the unitary process. But as an effect of environmental disturbances exceeding the usual standard range, the balance is upset, and conflicts between the part and the whole occur. The precariousness of the equilibrium of a human being compared to a stone of the same size is due to the fact that the former consists of a series of equilibrated systems, sub-systems, and so forth, enveloping each other like concentric circles, as it were, from the social level down to the molecule and quanta levels. Illness may be described as the effect of disturbed balance at the top or bottom or at any intermediary level. We may attack the hierarchy near the bottom, in its chemical equilibrium, by swallowing acid and thus producing ulceration of the stomach walls; or from the top by causing a specific type of nervous disequilibrium which will propagate itself downward and produce similar symptoms. Blistering of the skin may be caused by gross physical action from the bottom end, or hypnotic suggestion from the top; while, for example, hormone therapy and neuro-surgery aim at restoring equilibrium by action somewhere in the middle. The difference between so-called "psychogenic" and "somatogenic" diseases seems to be mainly one of the level of the unbalancing attack, and consequently of the upward or downward direction of the propagation of the disturbance. For it is an essential aspect of the part-whole hierarchy that disturbances of balance are

bound to propagate themselves in both directions. Needless to say that both somatic and psychic traumata will take their greatest effect on loci of least resistance, that is, on systems of unstable balance, caused by hereditary disposition or environmental action, and usually by both.

It should be noted that the term "equilibrium" or balance is used here in a sense slightly different from the usual. It is meant to refer not to the relation of two parts on the same level, but to the relation of part to coordinating centre. The term equilibrium implies at least two tendencies or processes, but these are not necessarily antagonistic by nature; they only become antagonistic or competitive in their behaviour as parts of one whole. The weights in the two scales of the balance both tend downward under the influence of the same law; they only become antagonists through their suspension at opposite ends of one scale. Similarly, flexors and extensors, sympathetic and parasympathetic innervation, are antagonists only relative to their competing functions in the body as a whole. The stresses which have to be balanced arise not between the competing part systems—which do not directly communicate with each other—but between each part and the whole, that is, *between the tendency of the excited organ or part to behave as an autonomous sub-whole, and the controlling influence of the integrative centre*. To change the metaphor: organic processes may be compared to proceedings in court, where the contesting parties address themselves not directly to each other, but each one to the judge. In the simpler forms of inorganic equilibrium, on the other hand, the opponents fight it out between themselves, without the intervention of a coordinating principle. It is essential to bear this distinction between *inorganic* equilibrium and *organic* (or self-regulatory, dynamic) equilibrium in mind; it is one way of contrasting the mechanistic and organismic viewpoints.⁸

⁸ This contrast is oversimplified; even on the level of inorganic systems, forms of dynamic equilibrium based on self-regulatory processes occur (see below).

PHYSIOLOGICAL ISOLATION AND THE SELF-ASSERTIVE TENDENCIES IN PRIMITIVE ORGANISMS ⁹

Among the various causes which may lead to an upsetting of the balance between the integrative action of the whole and the autonomous tendencies of the part, one is of particular interest to us: the disequilibrium caused by the "physiological isolation" of the part; that is, its partial or total release from domination by the integrative centre. Child ¹⁰ (whose pioneer work on the physiological gradients in embryonic development has been given far too little attention in current textbooks on biology) distinguishes four causes of physiological isolation. First, growth of the whole beyond certain limits may make it "unwieldy," this is, place the part outside the range of coordinating dominance. Secondly, decline in power of the integrative centre (through senescence or other causes) may lead to the same result. Thirdly, blockage or partial obstruction of communications (nervous or chemical), and fourthly, persistent direct local excitation of the part exceeding the range of the normal, may both lead to its "physiological isolation." As a rule, physiological isolation is the result of a combination of two or more of the above factors.

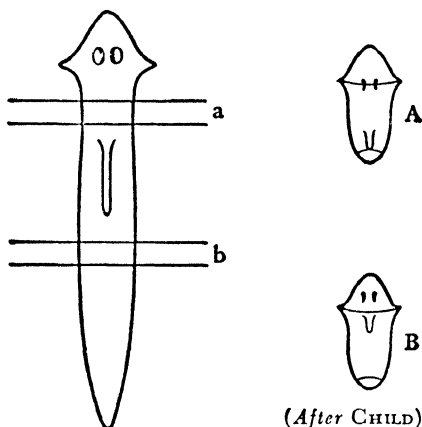
The effects of physiological isolation vary according to the phylogenetic and ontogenetic development of the organism, and according to the degree of isolation. They are most striking in the lower organisms, where the isolated part, released from the restraining control of the integrative centre, undergoes de-differentiation, and may develop into a new complete individual, or into a dominant centre of the old one, in which it played previously a subordinate role. "A physiologically isolated part of an organism tends in general to lose its characteristics as a part and to become or approach the conditions of a new whole individual." ¹¹ Thus any isolated segment

⁹ The reader may care to bear in mind during the following pages that the part-whole relation in a living organism has certain implications relative to the part-whole relation of the individual in society, as will be seen later on.

¹⁰ Child, C. M., *Physiological Foundations of Behavior* (New York, 1924)

¹¹ *Ibid.*, p. 151.

of planaria (*a*, *b*) may develop into a complete new individual (*A*, *B*).



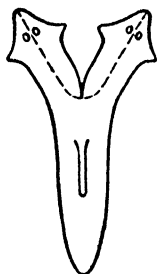
(After CHILD)

On the other hand, forms with two heads can be obtained by releasing the cut end of the anterior fragment from the dominant influence of the old head (for instance, by anaesthetics) and exposing it to local excitation; the result will be a reversal of the “physiological gradient” of development:



(After CHILD)

Or again, two-headed planaria can be produced by partial longitudinal splitting:



(After CHILD)

Similarly, in many plants, where the function of the dominant integrative centre is performed by the main tips of growing branches, physiological isolation of subordinate parts can be brought about by anaesthesia or cooling of parts of the stem, or by direct local excitation of the subordinate part itself, with the result that such parts are released from the restraining control of the tip or “head” of the branch and developed either into new plants or into full leaves whose growth would normally be inhibited by the chief growing tip. The growth-stimulating effect of trimming and

pruning of plants depends on similar release mechanisms from the restraining tyranny of the head tip.

Thus in primitive organisms (and in the early embryonic stages of the development of higher organisms), physiological isolation of the part from the control of the dominant centre releases, in a suitable environment, potentialities in the part which are otherwise inhibited, and thus "involves a change in behaviour and structure from that of a part towards that of a whole organism."¹² Freed from restraining control, the isolated part displays an autonomous or "self-asserting" tendency, and tends to become either a new whole or to dominate the old one. This may be regarded as a direct consequence of Morgan's proposition that each cell inherits the whole germ plasm, that is, is potentially capable of developing into a whole organism, or into any part of it. Which part it will eventually become depends ultimately on environmental factors: namely, its position in the growing embryo, and is determined by the various physiological gradients in it. Roughly speaking, the apical or head end in each axial gradient is the one which, owing to its maximal excitation, has the highest metabolic rate and thus the greatest speed of development; it becomes the dominant part which regulates the development of all the lower levels along that gradient. To go into details would lead us too far astray from our main theme; the relevant point for us is that in primitive organisms *release of the part from its subservience to the whole causes de-differentiation of the part, that is, its regression to an embryonic level and thus to a liberation of its inherent potentialities*. The more such physiologically isolated parts are excited through environmental influences, the more they will tend to become the dominant part, the "tip" or "head" or "pacemaker" of the whole—or at least to grow into a tentacle, a segment, a branch, or a new zooid in colonial animals. Finally, if physiological isolation or autonomy becomes complete, the part will behave as a complete whole and give rise to asexual reproduction by fission, budding, and so forth. Sexual reproduction is

¹² *Ibid.*, p. 150.

merely a later modification of this process, where the two germ cells, each of which has been set apart from the rest of the body in a high degree of isolation, through their interaction generate the surplus excitation required to start the process of their developing into a new whole.

The upsetting of the balance between the whole and its part, and the resulting relative physiological isolation of the part, thus lead, under suitable conditions, to the display of autonomous or self-asserting tendencies of the part, to its making claims to dominate in various forms. One aspect of this is the de-differentiation of the part to an earlier (embryonic) level; in this respect the process is *regressive*. But on the other hand this regression leads to a rejuvenation of the part, to the release of its inhibited potentialities, to regeneration and reproduction. Consequently, it is a matter of metaphysical taste whether we call the autonomous tendencies of the part "regressive" and "conservative" or the opposite. We may regard the de-differentiation of isolated parts as a case of "*reculer pour mieux sauter*"; or we may regard the forward jump as a rebound from regression; both are merely verbal pastimes.

PHYSIOLOGICAL ISOLATION IN HIGHER ORGANISMS

In the higher organisms the degree and fixity of specialization of the parts limits their possibilities of change. De-differentiation is no longer possible for body cells and tissues, except in the early stages of embryonic development and in pathological processes. The causes of malignant tumours are not yet completely known, but it seems fairly certain that cancerous tissue behaves in its undifferentiated, unrestricted growth like embryo cells which are cut off from the integrative action of the organism. They occur mostly at an age when the integrative power of the organism is in decline (Child's second factor of physiological isolation), and probably as a result of persistent local irritation (fourth factor). While primitive organisms reproduce by fission, budding, and so forth, that is, by de-differentiation of the isolated part which recovers its original potentialities, the germ cells of higher organisms are isolated from the begin-

ning in the gonads, and are specialized in nonspecialization as it were.

Nevertheless, under abnormal forms of excitation, partial isolation of organs and organ systems frequently occurs in higher animals and in man, and expresses itself in the self-assertive, dominating behaviour of the part over which the integrative centre has no longer complete control. The causes of such autonomous part behaviour are mainly Child's fourth factor: abnormal local excitation. During the repair of injuries caused by mechanical lesion or infection, the injured part appears to dominate the whole organism; during starvation the digestive system continues to function at the expense of other parts, and so forth. On the other hand, Child's third factor, partial obstruction of the means of control, represents a category under which a whole range of pathological regressions of organ behaviour may be summarized—from gangrene, in which the isolated part behaves biochemically like any putrefying organic tissue disconnected from its body, to the fatty degeneration of tissues in pernicious anaemia, the various forms of sclerosis, and so forth. A secondary manifestation of the autonomous, self-asserting behaviour of part systems is the Adlerian mechanism of the overcompensation of constitutional organ inferiorities which may dominate the whole character of a person.

In the *nervous system*, blockage of the integrative controls results either in degeneration or hyperactivity of organs, or in other symptoms, according to the type and degree of the blockage. Leaving pathological extremes aside, and turning to merely "unusual" or "quasi-normal" conditions, we find the self-asserting tendencies of part systems exemplified par excellence in the totalitarian behaviour of the sympathico-adrenal system under conditions of panic or blind rage. The physiological aspects of the psychoses are as yet little understood, and references to their "mechanisms" are therefore largely metaphorical, but it is significant that they all refer to some kind of dissociation or "splitting off" of some functional part of the personality. The term schizophrenia is directly derived from this splitting process; the psychoanalytical reference to "autonomous com-

plexes" points in the same direction. In the repetition compulsion of obsessional neuroses, in the "fixed ideas" and "fixed-action patterns," we can clearly discern the isolation of a part function, its partial release from integrative control. "Repressed contents" are mental contents cut off from communication with the conscious ego; their tyrannical, dominating tendencies need not be emphasized. Finally, the "absent-mindedness" resulting from focusing attention on one mental process to the exclusion of all others, and its extension in hypnosis, are familiar instances of the dissociation and subsequent self-assertion of specific nervous functions under the influence of "local" overexcitation.

REGRESSION AND PROGRESSIVE REBOUND

It would seem to follow from the above that in primitive organisms the autonomous tendencies of the part are both "regressive," in that they tend towards earlier levels, and "progressive" in that under suitable conditions they tend towards rejuvenation and reproduction, whereas in higher organisms self-assertion of the part seems purely regressive and pathological. But this would be a hasty conclusion. Firstly, through the influence of abnormal environmental conditions, or their combination with hereditary factors, *faulty integrations* may occur—that is, behaviour patterns adapted to an abnormal and unadapted to a normal environment. Examples are individuals whose character was formed in the hot-house atmosphere of tense and complex family situations, and who become maladapted to the social climate outside the nest. In extreme cases of this kind, or through other forms of abnormal conditioning, the integrative centre's restraining influence over the lower, emotive levels degenerates into an oppressive tyranny, and therapy consists primarily in the release of the latter from their subservience to the coordinating centre. The most striking form of the undoing of the bonds of faulty integration are the neurosurgical technique of interrupting direct communication between the prefrontal cortex and the thalamic level by cutting the connecting pathways (leucotomy) or putting them out of action by electric shock therapy. The pre-

frontal cortex must be regarded as the highest integrative centre of the personality, and has been called (with the usual pinch of salt) the seat of the superego. Neurosurgery thus achieves a direct physiological isolation of the emotive centres from the tyranny of an over-tense superego. It is only used in desperate cases; but the less drastic forms of psychotherapy like psycho-, narco-, and hypnoanalysis, including Jung's technique, are all primarily means of releasing functional components of the psychoneural apparatus which had been repressed by faulty integration. In order to do this, these forms of treatment cause the personality to regress to *earlier*, infantile or primitive levels (by hypnosis, deep narcosis, or in the transference situation) with the hope of ultimately arriving at a more normal reintegration. It is the procedure of regeneration through temporary de-differentiation, of "*reculer pour mieux sauter*," which we have met before, repeated on a higher level of the hierarchy.

A similar result is achieved by the nocturnal regressions of the personality to primitive levels in the dream. These periodic plunges into the unconscious again represent a marked de-differentiation and rejuvenation of the personality, so much so that the identity of dream symbols with mythological symbols led Jung to speak of a collective unconscious. The fact that poetry and art, together with the so-called "intuitive" (preverbal) type of reasoning, all draw on unconscious sources, shows that one aspect of all creative activity is a regression to earlier, primitive, or archetypal levels through temporary separation from the restraining influence of the conscious integrative centre. The functional components of the personality which thus temporarily regain their autonomy, regain at the same time their creative potentialities—a further analogy with the regenerative effects of physiological isolation on lower levels of development. The universality of the myth of the prophet's or hero's temporary isolation and his return to society with new creative powers (Buddha and Mohammed from the desert, Joseph from the well, Jesus from the grave, and so forth) and its variant, the so-called "death and rebirth" motif, testify to the general realization of the creative value of temporary isolation (in this case of man

from his social bonds), followed by a forward bound. It seems likely that such fluctuations from the highest level of integration to the next lower one, and up again to a modified pattern, are an essential condition for the plasticity and adaptability of the evolutionary process itself. Too stable integrations would lead to rigidity instead of dynamic balance; the occasional release of the autonomous potentialities of the parts under conditions of stress appears as an important means of the adaptive reconstruction of the pattern of the whole.

The evolutionary significance of this process is well illustrated in the phenomena of *orthogenesis*, that is, the autonomous development of organs in direct response to secular changes in the environmental situation. A classic example is the gradual transformation of the hooves and teeth of horses, of which a fairly complete fossil series is preserved, in response to the drying-up of the swampy plains and the change of diet from soft marshy plants to crisp steppe grass. Equally good examples are the autonomous development of sense organs in direct interaction with the environment. However, if this process leads to excessive specialization or overdevelopment of organs, remedy is again found in a temporary regression to earlier levels, for example, through the emancipation of larval forms which mature before the unbalanced stage is reached.¹³

"DYNAMIC" AND "REGENERATIVE" EQUILIBRIUM

The organism lives in a constantly changing outer and inner environment; it is always subjected to partial stresses resulting from the interaction of external excitations with its rhythmic internal activities. Since under standard conditions the latter are fairly constant, we may simplify the picture for our present purposes by regarding the external environment as the main independent variable. If we further lump together the form, intensity, and duration of en-

¹³ Cf. Kalmus, H., "Separation and Reintegration as Phases of Evolution," *Philosophy* (July, 1943), No. 70. In this stimulating essay the author, starting from a different angle, arrives at essentially similar conclusions to those set out in this chapter.

vironmental excitations into one composite quantity, then we may roughly distinguish between "normal," "paranormal," and "destructive" environmental conditions—naturally bearing in mind that there are no sharp divisions between these categories.

As long as the excitation lasts, the organism is subjected to stresses which may be expressed in terms of disequilibrium between the excited parts and the whole. A state of perfect balance with all stresses reduced to zero is a limiting condition which in fact never occurs. The form and intensity of the conflict between the autonomous and integrated behaviour tendencies of the excited part depend on the form and intensity of the excitation.¹⁴ If the latter is well within the range of the normal, only a faint polarization of the tendencies will occur, which will almost immediately be neutralized (compare the short refractory period or afterdischarge of nerves); we will then say that the organism is in a state of *dynamic equilibrium*. Under "paranormal" excitation the conflict will go one step further, and the self-asserting behaviour of the hyperexcited organ or system will take various forms. The weakening of the integrative bond has been described as a relative isolation of the system from the controlling influence of the whole; at the same time, through its hyperfunction, the part will tend to dominate the whole, that is, to reverse the physiological gradient. The part which functions "as if it were alone" tends to pull down the whole to its own level; fight, copulation, intense pain, sleep, and so forth, are all regressions of behaviour one step down in the integrative hierarchy. We saw, however, that in the history of both the individual and the race such oscillations between levels may fulfill a positive function, and lead to various forms of rejuvenation or readaptation of the total pattern to lasting changes in the environment, that is, act as a safeguard against functional petrefaction. Such regenerative processes, after temporary regression and de-differentiation, may be regarded as "adaptations of a second order," as it were, a *regenerative equilibrium* with an oscillatory span of a larger order of magnitude

¹⁴ From this generalized point of view, no difference need be made between excitations of central and peripheral origin.

than that of the dynamic equilibrium prevailing under normal conditions. Finally, if the form, intensity, or duration of the excitation qualify it as "destructive," the tension will make the integrative bonds snap, disintegration will result, and the isolated parts will continue their downward regression through the various levels of the hierarchy to the inorganic state.

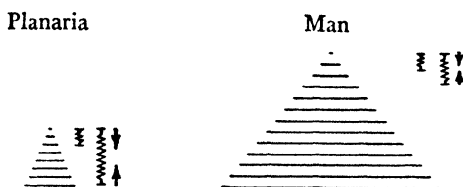
To sum up: on each level of the biological hierarchy we find a functional dualism between the integrative and the autonomous or self-assertive tendencies of excited parts. This does not imply a dualistic metaphysical position any more than Newton's principle of action and reaction, or the laws of electrical and magnetic polarization do on the inorganic level. The degree of polarization or tension between the integrative and self-asserting tendencies on any level depends on environmental conditions. Under standard conditions there is dynamic equilibrium; paranormal conditions are counteracted by "adaptations of the second order,"¹⁵ within the limit of regenerative equilibrium. By a gross analogy, dynamic equilibrium may be represented by the oscillations of a sensitive expansion spring on which the part is suspended from the whole; regenerative equilibrium by a more massive spring which is brought into action by a safety device when the span of expansion of the former is exhausted. Dynamic equilibrium implies continuous minute adaptations without change in the pattern of the whole; regenerative equilibrium implies major adaptations through a reshaping of the pattern.

The self-asserting tendencies of the part may be called regressive in so far as under conditions of great stress they tend to lower the functional level of the whole to the level of the part, that is, of the sub-whole in question and if unchecked by the integrative forces will bring the organism to dissolution. This, however, will only occur under abnormal conditions which make the springs snap, as it were, or when the integrative forces have been weakened by senescence (compare below): otherwise *the "regressive character"*

¹⁵ On the mental level the "adaptations of the second order" correspond both to the therapeutic reshuffling of faulty integrations and to the "creative adaptations" in art and discovery, as will be seen in Part IV.

of the self-assertive tendencies is a necessary condition for the adaptive oscillations of both dynamic and regenerative equilibrium, and thus of evolutionary progress in general.

Obviously these oscillations have a maximum span—the functional regression or de-differentiation must not exceed a certain limit, otherwise the spring will snap; that is, the integrative tendency will be unable to counteract the downward trend. From this it follows that primitive organisms which have not progressed very far from the basic protoplasmic or protozoic level will have a proportionally much greater span of regenerative equilibrium than the higher organisms. Man can live without his frontal lobes, dogs without most of their cortex, ringworms without a head; and in planaria the span between the basic (protoplasmic) and the top (organismic) levels of the whole animal is so short that it coincides with the span of its regenerative equilibrium, so that the rather drastic operation of being cut into small pieces leads to regeneration of each piece. This relation may be schematized as in the following diagram, where the upward direction represents the integrative, the downward direction the autonomous tendencies, and where the small spring represents the maximum span of dynamic, the larger spring that of regenerative equilibrium:



SENESCENCE AND THE DEATH INSTINCT

We saw that an organism will disintegrate and die when the form, intensity, and/or duration of environmental disturbances exceed its range of regenerative equilibrium. The notion of so-called “natural” death, in the sense of an inherent tendency of all living substance independent of environmental conditions, was abandoned in biology a considerable time before Freud postulated his Death Instinct as a

general principle in nature. In fact, both sexuality and natural death make their appearance only at a relatively high level of evolution.

"Neither senescence nor natural death are necessary, inevitable consequences of life. Natural death is biologically a relatively new thing," says Pearl in his excellent summary of the subject in the *Encyclopædia Britannica*.¹⁶ The protozoa are immortal; they reproduce by simple fission of one individual into two, "leaving behind in the process nothing corresponding to a corpse." As Woodruff and his school have shown, in a favourable environment this process will go on indefinitely without any sign of senescence. In primitive multicellular organisms—planaria, sponges, coelenterates—senescence and natural death are equally absent; they reproduce normally by fission or budding, again without leaving any dead residue behind. Even certain fish seem to keep growing indefinitely without signs of senescence and are potentially "immortal except for accidental death."¹⁷ As for the higher organisms, the technique of cultivating organ tissues of animals and man has demonstrated that, in a suitable medium, these tissues live indefinitely without signs of senescence. The famous fragment from the heart of a chick embryo, placed in vitro by Carrel and Ebeling in January, 1912, keeps pulsating and growing to this day; and it will no doubt keep doing so as long as its nutritional needs are satisfied. Somebody has calculated that if this tissue fragment had been permitted unlimited growth, it would by now have reached the size of the sun. Tissues from practically every organ, and even entire organs, have equally been cultivated in vitro, and the results indicate that the cells of all the essential tissues "are potentially immortal when placed separately under such conditions as to supply appropriate food in the right amount and to remove promptly the deleterious products of metabolism."¹⁸

It is the practical impossibility of complying with these conditions in the complex multicellular organism which prevents it from living for ever. The senescence of tissue cells is the cumulative effect of

¹⁶ *Encyclopædia Britannica*, 14th ed., Vol. 7, pp. 110ff

¹⁷ *Ibid.*

¹⁸ *Ibid.*

their insufficient nourishment and of the incomplete disposal of their waste products by the circulating medium. In other words, death is the consequence of the (metabolic) imperfection of the higher organisms; it is an epiphenomenon, and not the expression of any fundamental organic law or protoplasmic tendency. Whether these imperfections can be counteracted by artificial means, and, if so, to what extent, is at the present state of science an open question, and, though not without practical interest, has no bearing on the theoretical aspect of the problem.

From a different point of view, which the modern biologist shares with ancient Eastern philosophy, death is of secondary importance in the existence even of the highest species, provided that the emphasis is shifted from the soma to the germ plasm, that is, from the individual to the race. For the germ cells of sexually differentiated organisms are again immortal in the direct and literal sense; they pass on from one generation to the next without leaving any residue behind, and have done so since the emergence of multicellular organisms on earth. Mortal is only the soma, the individual body in which the germ cells periodically clothe themselves and which they periodically shed, much as a tree forms and sheds its leaves according to season. Obviously from the individual's point of view there is little comfort in the thought of the gene's potential immortality; but, to quote Schopenhauer, from this narrow individual angle death is merely the reestablishment of the state before birth. Whoever deplores the prospect of personal nonbeing in the future eternity must also deplore his nonbeing in the eternity of the past; both are fallacious regrets, for:

To have lost what cannot be missed is obviously not an evil. . . . Death cannot negate more than that which birth has posited; and hence not that through which birth became possible in the first place. The expression "Natus and denatus" beautifully renders this meaning.¹⁹

That such considerations are not purely metaphysical pastimes of the intellect may be gathered from the biological evidence already

¹⁹ Schopenhauer, *Über den Tod und sein Verhältnis zur Unzerstörbarkeit unseres Wesens an sich*.

referred to, from the further fact that wherever in the animal kingdom conflict arises between the interests of soma and germ, the former is almost invariably sacrificed to the latter; and also indirectly from the fact that a sense of continuity with past and future generations, with the tribe, nation, or race, is a primary datum of all civilizations. To carry in one's gonads a set of molecules which has been handed down practically unchanged, practically from the beginning of the race; which formed part and parcel of cavemen, priests, galley slaves, and crusaders; and which will go on budding into offspring of unpredictable shape in the future, is a thought the more fascinating as it refers to reality.

As to the drive towards destruction and self-destruction, the Freudian Death Instinct, no biologist or zoologist has ever found its trace. Animals destroy the functional unity of plants and of other animals in order to feed on their substance, or to eliminate them as rivals for food or for mating. But this is a means towards an end, and cannot be interpreted as the manifestation of a primary law or instinct any more than the destruction of a sugar crystal by making it dissolve in my coffee cup can be interpreted as such. Like all means towards an end (or subfunctions in nonteleological language), destruction may, in fear or rage behaviour and under other paranormal conditions, become an end in itself; but the fact that a function may become detached from its original purpose is not sufficient grounds for its hypostatization. It is also quite incomprehensible how the "silent working of the death instinct inside the body," that is, the process of senescence, can be "projected outwards" and manifest itself as sadistic aggression against other bodies. We shall return to the Freudian metapsychology later; for the time being we must conclude that biologically Freud's death-and-destruction drive is a myth—the only one which his myth-destroying genius embodied into his system.

SUMMARY

Thus both Freud's basic tendencies, Eros and Thanatos, sex and death, are not primary factors in evolution, but biological novelties

which only appear at a relatively high level of complexity; the first as a variation of asexual reproduction and sometimes alternating with it, the second as a consequence of imperfections accompanying growing complexity, but only appearing at a stage where the differentiation of germ plasm from soma makes it possible periodically to shed the latter, like withered leaves, without affecting the survival of the former. The hypostatization of sex and death, despite their limited range of validity on the biological scale, leads consequently to an anthropomorphic system of metaphysics and also of metapsychology—for what the latter aims at is a tracing of laws which are continuously valid over the *whole* biological scale from the protoplasmic to the human level.

The only fundamental principle which seems to apply to the whole biological hierarchy is the polarity between the integrative and self-assertive tendencies, with their various forms of equilibrium. Sex then appears as a derivative of the integrative tendency, a specific subform or branch of it, though doubtless one of very great importance; while the various forms of Freud's Death Instinct appear as derivatives of the self-assertive tendencies. Destructive behaviour is thus regarded as an extension of self-assertive, aggressive-defensive behaviour under conditions of abnormal environmental excitation; death through disease as an unchecked release of the autonomous tendencies of organic parts under destructive environmental conditions; and, finally, death through senescence as a consequence of the cumulative deterioration of the internal environment of organic parts, that is, tissue cells.

The difference between this conception and the Freudian metapsychology may at first sight appear to be merely verbal; its full implications will appear presently, when we apply our working concepts to the problem of social behaviour.

XI

Some Aspects of the Behaviour of Social Wholes

PRELIMINARY: INTEGRATION AND AUTONOMY ON THE INORGANIC LEVEL

BEFORE we attempt to extrapolate our findings in the "upward" direction, that is, to inquire into the working of the integrative and self-asserting tendencies in the relations of the individual to society, it may be worth while to inquire in passing whether it is possible to extrapolate "downward"; that is, to see whether any similar polarity may be found in inorganic nature.

The genetic precursor of the two behaviour tendencies—namely, differentiation and integration—is certainly present on the inorganic level: in the formation of various patterns of energy concentrations or "elementary particles"; next, in the formation of a multitude of different types of atoms and their isotopes; in the formation of molecules, crystals, and so on. Each of these systems represents a functional whole, that is a structurally differentiated integrated pattern. We again find that the organizing relations or laws become more complex on each successive level, are unpredictable from the next lower level, and cannot be reduced to it; all we can safely say is that integration and differential articulation are found on every level as the essential condition of the inorganic, as of the organic hierarchy. If this sounds like a commonplace, so much the better; it makes us feel all the more that we are on solid ground.

We may speak with equal assurance of a dynamic equilibrium

both on the physical and chemical levels. The "particles" in the atom, the atoms in a molecule, and the molecules in a crystal, each constitute relatively stable systems so long as environmental conditions are kept within a certain range, and are capable of persisting as functional wholes in the teeth of mechanical, thermal and radiation disturbances by virtue of their self-regulatory devices. A second or "regenerative" equilibrium seems to emerge on the crystalline level and is observable in electrolytic processes, in the self-righting of a dented wire coil carrying a current, and in similar phenomena. The autonomous or self-assertive tendencies of the parts or sub-wholes of such stable systems appear on various levels as inertia, centrifugal momentum, free valencies, and so on; the integrative tendencies in the various forms of attracting or binding forces: internuclear, gravitational, electromagnetic, and so on. "Relative isolation" of parts may lead to more complex forms of reintegration, as in the formation of solar systems or the combination of a large number of atoms into complicated molecules. Chemical reactions which completely destroy the individuality of the participating molecules are much rarer under stable natural conditions than we are wont to believe; chemistry is associated in our minds with artificial laboratory conditions. The most frequent destructive processes under normal environmental conditions are corrosion or the oxydation of surfaces exposed to water and air, which is rightly called a form of disease or decay. Even "senescence" is a term which has recently been applied to the deterioration of solids with a fibrous-crystalline structure, due to the inadequacy of the internal environment of the crystals. Finally, the so-called "endothermic explosives" may be regarded as cases of "faulty integrations," that is, integrations enforced by an artificial "hot-house environment," and which accordingly behave in a hypersensitive or "highly strung" way. A closer understanding of these processes becomes only gradually possible, as quantum-mechanical concepts slowly permeate all spheres of physics, chemistry, and, in a probably not too distant future, biology.

These instances are no more than analogies and are not meant to

be more. We saw that the antithesis of part-behaviour and whole-behaviour is expressed in different forms and by different laws on each level; hence, any symbol employed to refer to a given level becomes metaphorical when applied to a different one. We usually overlook the fact that terms like "affinity," "attraction," "cooperation" are employed to refer to a number of quite different relations on different levels, and are thus mostly used metaphorically. The "attraction" between opposite sexes does not necessarily increase in ratio to the mass of the bodies involved nor decrease with the square of the distance, as "attraction" does on the inorganic level.

It is nevertheless true that wherever in the evolutionary hierarchy we find relatively stable systems, their stability is maintained by the equilibrium of antagonistic tendencies—an antagonism which can be expressed in the general form: the part has, on the one hand, to preserve its individuality lest the whole lose its articulation, and must, on the other hand, subordinate itself to the functional whole. From this point of view we may regard the various types of integrative forces on various levels as one continuous series, from the attraction exerted by the atomic nucleus on the revolving electrons to the "attraction" (metaphorical) which an idea might exert on a man; and we may also group into a second continuous series their antagonists on each level, from the centrifugal forces in physics to the self-assertive behaviour of the individual in the social whole. As already mentioned, these two series do not represent any metaphysical dualism, but only the common denominators of the functional polarization occurring at each level of the hierarchy.

THE CONTINUITY OF BIOLOGY AND SOCIOLOGY

The same reservation regarding the extrapolation "downward" of biological tendencies applies to their "upward" extension into the sphere of social integration. All biological approaches to social phenomena have necessarily been metaphorical, from the day when the Roman plebs were told the allegory about the head and the limbs; and they must remain metaphorical as long as we expect to find in the social organism a kind of reproduction or morphological

enlargement of the biological organism. But by adopting a dynamic or functional, instead of the morphological approach, the continuity between the series becomes at once apparent. From a functional point of view, "society is a dynamic integration of human organisms, and the human organism is an integration of cells, tissues, and organs."¹

Sooner or later biology and sociology, which at present have but few points of contact, will appear as branches, or rather levels, of one discipline—as astronomy, physics, and chemistry became not so long ago. The humanist's distrust of this trend is mainly due to the crude nature of the first attempts to establish continuity: for example, the projection of an oversimplified Darwinism into the political sphere, or Spengler's morphological approach to history.² Apart from the "morphological fallacy" of regarding the group as a kind of thousand-tentacled superoctopus, there seems to be a second, less obvious reason for the lack of continuity between the two sciences. It is the fallacy of regarding human society as a functionally *mature* whole, that is, a system which has reached some form of dynamic equilibrium. Now this may be true of some of the most perfected types of insect societies which indeed represent stable functional wholes, but it is totally untrue of human society, which is the most unstable and transitional of all animal group formations. The reason for this is that *Homo sapiens* lives in an environment which is changing through his own activities at a biologically unprecedented rate, that is, under paranormal conditions such as no other species has ever experienced. His social history therefore is a sequence of profound "regenerative adaptations," of groping transformations of the pattern of the whole which is still very far from

¹ Child, C. M., *Physiological Foundations of Behavior* (New York, 1924), p. 270.

² The resistance to such attempts may be compared to the psychologist's revulsion to explaining character in terms of bumps on the skull. Though over a hundred years have passed since Gall, academic psychology hasn't yet recovered from the shock inflicted by his naïve "bumpology," and has ever since jealously defended the autonomy of its discipline; the very mention of the ugly word "brain" was regarded until fairly recently as in rather bad taste by the psychologist.

reaching dynamic equilibrium. We shall return to this point later.

With these two reservations in mind, it is easy to see that the overlapping of the terminologies referring to the individual and the social body expresses a real functional continuity of the tendencies at work on both levels. "Differentiation," "integration," "division of labour" are terms equally applied to bodily and social organisms; the "cell state," the "group mind," cultural "decay," and social "diseases" are metaphorical only in the sense that "attraction" or "inertia" are, that is, if used to imply morphological similarities. But, functionally, the individual displays the same double aspect which we met at the lower levels of the hierarchy: facing downwards (or inwards) he behaves as a whole; facing upwards or outwards he behaves as part of a social whole. And as he lives, we said, in a paranormal social environment, we shall not be surprised to find the antagonism between his integrative and self-assertive tendencies particularly pronounced.

In Ritter's phrase, "the organism in its totality is as essential to an explanation of its elements as its elements are to an explanation of the organism"; and this may be equally applied to the relation between the individual and society. (Compare Marx: "Man is the ensemble of his environment.") From the point of view discussed in the last chapter, an organism is defined not as the sum of its parts but as the pattern of the relations between them. Similarly, society as a functional whole is defined not by a summation of individuals but by their institutional relations. Morphologically, of course, there is a vast difference between an individual and a social body; but even morphologically this difference is not as easy to define as it might seem. The most obvious differential criteria, such as physical or protoplasmic continuity, a closed surface, and so forth, are of doubtful value if it comes to exact definitions. The blood corpuscles, for instance, although part of the organism, are not physically continuous; and, in the case of certain lower organisms, groups of cells may sever contact with their neighbours, migrate, and associate with other groups. The whole idea of a "closed surface" and of the "firm boundaries" of the individual becomes the more nebulous the

deeper we descend in the evolutionary scale, towards the primitive cell colonies, just as the idea of discrete bits of matter dissolves when we approach the atomic level. And yet it is just on these primitive levels, where our ordinary conception of an individual organism is no longer applicable, that the integrative tendencies manifest themselves most strikingly. Mention has already been made of the capacity of fragments, even of single cells of planaria, to grow into a new head or a complete body. Even more striking are the experiments of Wilson and Child, who

crushed the tissues of sponges and hydroids, sifted the cells through bolting cloth, and then observed their behaviour in water. At first independently suspended, they aggregated by settling or centrifuging. From flat sheets they then rounded up spherically, began to differentiate, and ended as adult individuals with characteristic mouth, tentacles, and so forth.³

No wonder that Carrel, observing similar instances of what he calls the "integrative element in the behaviour of cell-groups in the nutrient medium in vitro," remarked: "These cells have, as it were, the magical power of setting themselves in order and making a wall, even when there is no house to be erected and no mason to build it." ⁴ Such instances of the integrative behaviour of primitive organisms under paranormal conditions yield a better approach to the understanding of the integrative tendencies in human society than the comparison with the mature body. For there can be little doubt that human social organization is, relative to its inherent potentialities, still on a very primitive level of the suprabiological hierarchy, and subject to environmental disturbances as vehement as those in the experimental laboratory.

While it is thus rather difficult to give precise definitions even of the morphological differences between the animal body and the body social in terms of "continuity," "boundaries," and so forth, and while analogies between the two abound (for example, the

³ Quoted from Dunbar, H. F., *Emotions and Bodily Changes* (New York 1946).

⁴ *Ibid.*, p. 9.

"boundaries" and "organs" of the state), these can never be more than analogies, and to overwork them means to obscure the essential point; namely, the *functional* continuity of the physiological and social integration of living systems into more complexly organized wholes. From the functional point of view, it is not physical continuity in space which makes an organism, but primarily continuity of communications, that is, the transmission of *excitations* and the transportation of *substances* within the whole. Whether communication is effected by signs, words, or by technical organ-extension such as the telephone, makes little difference from the functional point of view—so little difference that the analogy of telephone wires is currently used to explain the working of nervous communications; in fact, all types of communications can finally be reduced to the transmission of protoplasmic excitation from one part to another. As to the transportation of *substances*, the parallel between metabolic processes and the production and circulation of goods in society is again purely metaphorical if we disregard the difference between the specific organizing relations on each level; but production and commerce appear as functional equivalents of metabolism if we regard both processes as instances of material correlations in organized wholes. (We may even go so far as to distinguish an intermediary stage between "material" and "energetic" correlations in the circulation of substances which act as energizers without entering into the metabolic relation itself; enzymic catalysers on the organic, bank notes, printed matter, works of art on the social level.)

The reader, to whom such considerations appear at the same time as trivial and as not to be taken quite seriously (that is, who only sees the morphological analogy, not the functional continuity between levels of evolution) may be reminded that "organism" is derived from "organization," and that there is nothing mystical in the view that society is essentially a form of organization, and the individual another form.

Mere aggregation of, and communication between, parts without integrative forces do not make an organic whole. On the inorganic

level we find the integrative tendency sometimes, but not necessarily, focused in some "centre" (the sun, the atomic nucleus, and so forth) around which the field forms a gradient, a kind of concave slope, as it were. Frequently the gradient (of a complex molecule for instance) has no well-defined centre but a number of nodal points instead—it has the pattern of an elastic network. In the example of the crushed sponge, the integrative tendency must be assumed to work through diffuse electrochemical gradients in the water, a network of lines of force with as many nodal points as there are cells. In higher organisms we find axiate gradients with the growing tip, bud, or apical end as the dominant integrative centre. Even higher up the scale, we find a whole hierarchy of coordinating centres, with all kinds of cross-branches, multiple controls, and other complications, so that Child speaks of a "democratic" organization of the gradients in the higher, as opposed to the "autocratic" in the lower axiate forms. Whether this analogy is valid is of little interest to us; the point to remember is that the concretization of the integrative tendencies in a functional whole may take many different forms; and among these the diffuse integration gradients of the crushed sponge are of particular social significance, for reasons explained above.

INTEGRATION BY INSTITUTIONAL CONTROL

When we pass from the physiological to the social level, we have to expect even more complicated forms of integrative coordination. Mere aggregations of individuals or families into a loose herd whose coherence is due to ecological rather than to social gradients, are comparable to the primitive cell colonies and are border cases at the bottom of the social hierarchy. In moments of danger, however, such amorphous herds often become polarized into "axiate" forms under the *ad hoc* leadership of an individual who happens to find himself at the point of maximum excitation or pressure, and thus becomes the head or tip of the herd in flight.

The herd or society dominated by a *permanent* leader corresponds to the stable axiate form of organisms with a straight gra-

dient; the V-formation of migrating geese is a good analogy of a primitive organism with an apical tip. In higher forms of social integration, however, the integrative control of the whole is no longer centred in a single individual, "tip," or leader, but in a group, caste or institutional hierarchy. The social gradients which thus arise are represented by laws, customs, traditions, and "dominant ideas" (Child). In the ant state there is no apparent leadership, yet there is perfect integrative coordination and perfect subordination of the parts to the functional whole, carried to the point of planned eugenics—that is, the determination of the caste of the offspring by differential treatment of the eggs according to the requirements of the labour market. Among all the marvels of the ant state (they impress us as "marvels" mainly because we envy their frictionless social integration and admire the "unselfish" submission of the individual to it), this determination of the structure and function of the offspring by the social gradients active in the whole is the most significant, for it corresponds to the determination of the structure and function of individual cells by the physiological gradients in the embryonic tissue (through inhibition of certain potentialities and facilitation of the development of others), and proves that the insect state functions indeed as an integrated organic whole.⁵

The gradual replacement of individual by institutional control in the higher forms of society seems to introduce an element of abstractness and to break or dissolve the continuity of the evolutionary series. After all, one might say, the body is coordinated by tangible organs of flesh and blood, and to say that institutions or ideologies fulfill the same function on the social level is merely to play with words. This objection is based on the conscious or unconscious assumption of a clear-cut division between the "material" and the "mental," between spirit and matter, against which it is as pointless to argue as against any other axiomatic belief. From the empirical and genetical point of view, however, consciousness appears as a matter of gradations, and there is a continuous series of processes

⁵ The long-standing discussion whether this whole has a collective or group mind is meaningless in this context, for it begs the definition of "mind."

from consciousness of the self downward to awareness of other objects, through the states of "attention," or "vigilance" to nervous excitation, just as there is a similar continuous series of mnemonic levels. Ideas are, then, first, stable patterns of nervous processes in the individual, or, more concretely, specific attunements of neuron circuits which act as resonators (memory traces) to certain patterns of excitation, and thus determine internal and external behaviour. Evidence shows that these "traces" are not localized in any point of the cortex but are attunements of whole functional areas of the cortical surface, so that if one part of a cortical area is destroyed, another can take over its function.⁶ The operative fields of thought and behaviour must be visualized as highly complex integrations of such patterns of resonance—compare Lashley's image of the standing waves on a pond.⁷ Thus even in the *individual* the integrative power of the whole over its parts is not focused in any sharply localized centre acting like a kind of mechanical switchboard, but consists in a certain mode of attunement, that is, a spatio-temporal pattern of relations between neurons in different phases of excitation. Which individual cortical neuron has been excited is of subordinate interest; the pattern alone is what matters.

Similarly, the power of the social whole over its parts is vested not in individuals, but in institutions, that is, a pattern of relations between individuals. Traditions, customs, and laws are the "precipitate" of such relation patterns of the past, corresponding to the memory traces and operative fields of the individual. They are embodied in the organs of the executive and legislative power, the judiciary, and so forth, and determine the social gradients in the internal environment of the social body. It should be repeated that, while morphologically, all this is metaphorical, functionally, social organization is a direct continuation of biological organization, that is, the manifestation of the integrative tendency on the next higher level. It should also be remembered that even on the inorganic level the integrative tendency is not necessarily localized in some tangible,

⁶ Lashley, *Brain Mechanisms and Intelligence* (1929).

⁷ Cf. Chapter IV.

material centre. The elliptical orbits of the planets have as one of their foci the sun; the second focus is empty—it is merely a nodal point of the field.

REGENERATION OF SOCIAL WHOLEs

As mentioned before, the organizing relations on a given level can never be completely reduced to the next lower level, nor predicted from it. Even a far completer knowledge of the laws of individual behaviour than exists at present, would not enable us to predict the laws of organized social wholes. But, on the other hand, we also saw that the fundamental polarization into autonomous and integrative behaviour tendencies repeats itself on each level of the hierarchy, and we must therefore expect that processes directly derived from this polarity will also be found, though under different forms, on the social level. Such a process is among others the “relative isolation” of parts with its regressive and regenerative consequences. Of Child’s four factors which may cause isolation and autonomous behaviour of the parts, the first, unwieldiness caused by excessive growth, has its equivalent in the splitting off of tribes, clans, colonies, city states from the original group which, through increase of size, has lost its controlling power. This may be regarded as a reproduction of societies through fission or budding, and the split-off group usually displays all the vitality of a de-differentiated, rejuvenated part (for example, a “young” nation). In the higher organisms, whose central nervous system assures almost perfect internal communications, mere size ceases to be a limiting factor of integration, and on the social level the perfection of technical communications has the same effect. The modern states have become relatively stable functional wholes, distinguished from each other by their respective integrative patterns—language, tradition, geopolitical factors. In the relation between sovereign states, the polarity between integrative and self-assertive behaviour is once more repeated on a higher level.

Child’s second factor, autonomy of parts through decrease of integrative dominance owing to senescence or other reasons, is re-

peated on the social level in the splitting up of aging empires and the social disruption of nations with a declining ruling class. Social, like physiological, senescence appears as a consequence of imperfect integration, that is, deterioration of the individual parts through an unfavourable internal environment.

The third factor, obstruction of communications, played an important part in the autonomous developments of communities isolated by the sea, by mountain barriers, by artificial ghetto walls, and so forth. Finally, the fourth factor, direct local excitation of exposed parts, is again the most important one. We saw that parts or part-systems subjected to intense or persistent excitation tend to reverse the physiological gradient and to dominate the whole. Similarly, groups, castes, and social classes under strong, persistent pressure—those which at a given period bear the main burden of defending or supporting the whole—will tend to reverse the prevailing social gradient and to ascend to domination. Magicians, warriors, slaves, plebeians, peasants, burghers, workers, managers, and so forth, have each taken their turn at imposing their will on the whole; and each time one of them succeeded, society underwent a temporary and partial disintegration, that is, a regression of the whole to the level of the dominant sub-whole, with a successive regenerative transformation of the social pattern. *Human history is essentially a tale of very primitive social organisms in a state of regenerative equilibrium.* No social organism as highly developed and stable as the insect states could have survived such unprecedentedly rapid and radical changes of environment as those to which *Homo sapiens* submitted himself in his transition from the cave to the industrial metropolis. His communities were treated much in the fashion of a flatworm cut into pieces in a laboratory, or the sponge which is passed through bolting cloth; and they could only regenerate again and again owing to the fact that they were still at the bottom of the hierarchy of social integration, with all the regenerative vitality of primitive organisms.

It is accordingly unlikely that substantial progress towards the stability and dynamic equilibrium of society can be made until man's

environment becomes reasonably standardized, that is, until the technical exploitation of nature approaches saturation point, both with regard to the satisfaction of existing needs and the cessation of the process of creating new ones. There are some signs which seem to indicate that this time is not quite as fantastically distant as it may appear at first sight. Until that time, however, a relatively low degree of social integration, that is, considerable autonomy of the individual part in its relations to the social whole, is an essential condition of the survival of the race, for it prevents the formation of powerful faulty integrations, as exemplified in the totalitarian state. The main danger in periods of rapid transition is less in the direction of the individual's self-assertive behaviour than in his fanatical unselfishness in the service of a state or a dominant idea.

SOME OBJECTIONS AND INFERENCES

At the end of this necessarily sketchy excursion into the realm of the future science of the evolution of social wholes, it may be useful to eliminate some misunderstandings which may have arisen from the preceding pages.

First, when the ant state was referred to as superior in its organization to human society, this was meant relative to the inherent potentialities of social integration in each, and did not of course imply that the former should serve as a model to the latter. Man stands so much higher in the biological hierarchy than the ant that we must expect the ultimate achievement of a proportionate superiority in the mature human supra-organism. Or, to use the ontogenetic parallel: the higher a species stands in the evolutionary scale, the more helpless its young are born and the longer it takes them to reach the equilibrium of maturity. *Mutatis mutandis*, human society compared to insect society must be considered to be still at an infantile or even larval stage.

Secondly, when we say that the human environment is changing at a biologically unprecedented rate, it might be objected that as this change—the rapid rise of man's power over nature and his

fellow men—was entirely of his own doing, it represented a break of continuity in the evolutionary series. Animals, however, also change their environment and develop techniques such as nest building, the laying of traps (spider), burrowing complicated underground cities and, in the case of the termites, even contriving thermo-regulatory devices for them. The rudimentary use of tools, agriculture, and the domestication of other species are also present in the animal kingdom, so that the conquest of nature by man merely represents a continuation of the series on a larger scale.

Thirdly, it may be objected against the assumption of a functional continuity between biological and social organization, that sex is a fundamental feature of the former, whereas no functional equivalent exists for it on the level of social wholes. Against this argument Child rightly emphasizes that sexual propagation "is a specialized form of reproduction requiring special conditions for its occurrence and not a fundamental physiological factor in reproduction in general."⁸ We saw that the older form of agamic (asexual) reproduction consists chiefly in the isolation and subsequent de-differentiation of parts or cells which thus regain their full original potentialities and grow into a complete whole. In the higher organisms some cells are isolated from the beginning and "specialized in non-specialization"; in parthenogenesis these cells develop into complete individuals without fertilization—a kind of halfway house between the original and the later forms of reproduction. Furthermore, in many species which normally reproduce sexually, the egg can be made to develop fully if fertilization is replaced by physical or chemical stimulation. It seems therefore that the union of ovum and sperm merely serves auxiliary purposes in reproduction, by providing a stimulus to the ovum and variety through the shuffling of hereditary potentialities. "Sexual reproduction seems to be a process depending on isolation plus a more or less definite or specific excitatory factor."⁹

⁸ Child, *op. cit.*, p. 295.

⁹ *Ibid.*, p. 295.

As reproduction is the basic process which guarantees the survival of the species, and as the gonads are the truly immortal parts in the mortal hull of the individual, whatever specific form the reproductive function assumes in a given species will have paramount importance in the life history of the individual and of the social group. This is the source of our anthropomorphic tendency to regard sexual differentiation and union as a basic law of nature and to build a mythology around it in which even sun and moon belong to different sexes, although it is merely one of the many forms of evolutionary integration. Accordingly, only our morphological bias can lead us to expect that the behaviour of social groups towards each other will repeat the specific forms of sexual behaviour. All that we are entitled to expect is that we shall find again on the social level the basic functional aspects of differentiation and integration, some of which have been mentioned above. We saw that isolation and specific excitation of social groups may lead to the rise of new societies or the rejuvenation of old ones, that is, to regenerative and reproductive social processes. We may add to these the creative mutual excitation caused by the intermingling of two cultures as a remote functional parallel to the sexual mixing of hereditary potentialities; and, as an even remoter parallel to the germ substance as carrier of the heredity and potential immortality of the species, those organs in society which assure the continuity of human tradition: the chroniclers and scribes, the monasteries and universities which in their gonadic isolation during the dark ages preserved and transmitted the human heritage. But this is where we must stop if we are to avoid the lures and traps of the metaphorical approach.

Finally, the biological approach to the idealistic and materialistic views of history makes these appear as extrapolations of the psychogenic and somatogenic views in medicine, and hence as a typical pseudoantithesis. We saw that disturbances of equilibrium on any level of the organismic hierarchy will propagate themselves both "upward" and "downward"; that adaptive reactions of the whole may be caused by stresses set up at the top—"the ideological level," or at the bottom "the material level," or in between; and that such

stresses will have their maximum disruptive effect in loci of least resistance. Thus, ideological causes may lead to economic changes and vice versa; their alternations and interactions reflect the interdependence of the social organism's inner environment (its social gradients) and the outer or natural environment.

XII

Primitive and Infantile Forms of Self-Transcendence

IN the previous chapter we discussed some aspects of the behaviour of social wholes ; we now return to our proper theme, the behaviour of their parts, that is, of the individual.

The polarity between autonomous and integrative tendencies, which we met on each level of the evolutionary hierarchy, is reflected in the aggressive-defensive reaction patterns of the individual, as opposed to his self-transcending impulses. In the present chapter we shall discuss certain characteristic forms of the latter. It need not be emphasized that the self-transcending impulses of the individual are part and parcel of his psychophysiological make-up just as much as his self-assertive impulses are, and are not merely enforced by law and convention from outside. The social environment determines the form in which both basic reaction tendencies will manifest themselves, it facilitates or thwarts their unfolding; but the tendencies themselves are organically rooted in the individual.

The study of the self-transcending impulses and emotions is hampered by two difficulties. The first is that neither of the two basic tendencies can be studied in complete isolation ; their polarity makes it as difficult to distinguish in a given behaviour pattern, for example, in sexual love-behaviour, between the parts played by the self-asserting and the self-transcending impulses, as it is difficult to distinguish between the influences of the North and South Poles on a magnetic needle. In this sense we can explain the ambivalence of

all human relations and the compound character of the emotions. Nevertheless, in most emotive states one or the other tendency dominates—the magnetic needle is either closer to the North or to the South Pole (the analogy is, of course, misleading in many respects) ; but at this point we encounter the second difficulty. Owing to certain peculiarities of contemporary Western civilization, which will be discussed later, the self-transcending impulses of the individual are to a large extent thwarted or blocked. This state of the social whole corresponds to a type of organic disease which is not caused by *local* excitation (in a lesion or inflammation only the hyperexcited parts would behave in a dominative way, while other organs would serve the compensatory healing activities of the whole), but by degenerative influences which weaken the integrative forces in general and thus release the autonomous tendencies of practically all the parts—as in senescence and in certain toxic states. Hence we will find the manifestations of the self-asserting tendencies, like aggression or competition, in much clearer-cut patterns than the others. If we wish to study behaviour patterns in which the integrative tendencies dominate, we should find more favourable conditions in some of the great civilizations of antiquity, or in the Eastern hemisphere. Unfortunately, we know too little about the intimate psychology of the individual in these societies remote in space and time, and must therefore either content ourselves with the rudimentary expressions of the integrative tendency in our own civilization, or turn for more tangible phenomena to the world of the child and of surviving primitive races. This *faute de mieux* procedure may seem to be a confirmation of the Freudian thesis that all manifestations of the integrative tendencies are regressions to a primitive level. We shall deal with this argument later.

"PROTOPLASMIC CONSCIOUSNESS" AND THE LAW OF PARTICIPATION

As Ferenczi, Freud, and particularly Piaget have shown, the very young child does not differentiate between ego and environment. The mother's breast seems to it a more intimate possession than the

toes of its own body. It gradually becomes aware of events, but not for a long time of itself as a separate entity. It is in a state of mental symbiosis with the outer world, a continuation of the biological symbiosis in the womb, a state which Piaget aptly calls "protoplasmic consciousness."¹ The child is aware of events only in so far as they affect it; the universe is focused on the self, and the self is the universe; the outer environment is only a kind of second womb.

From this original state of protoplasmic or symbiotic consciousness, the development towards autonomous individuation is slow, gradual, and never entirely complete. The initial state of consciousness may be likened to a liquid, fluid universe traversed by dynamic currents, by the rhythmic rise and fall of physiological needs, causing minor storms which come and go without leaving any solid traces. Gradually the floods recede and the first islands of objective reality emerge; their contours grow firmer and sharper and are set off against the undifferentiated flux. The islands are followed by continents, the dry territories of reality are mapped out; but side by side with them the liquid world co-exists, surrounding it, interpenetrating it by canals and inland lakes, the relics of the erstwhile oceanic communion. Or, in the words of Freud:

Originally the ego includes everything, later it detaches from itself the external world. The ego-feeling we are aware of now is thus only a shrunken vestige of a far more extensive feeling—a feeling which embraced the universe and expressed an inseparable connection of the ego with the external world. If we may suppose that this primary ego-feeling has been preserved in the minds of many people, to a greater or lesser extent—it would co-exist like a sort of counterpart with the narrower and more sharply outlined ego-feeling of maturity, and the ideational content belonging to it would be precisely the notion of limitless extension and oneness with the universe.²

It is this "oceanic feeling" which the mystic, the lover, the artist strive to recapture on a higher level of development.

Until the end of the second or third year, while ego and nonego

¹ Piaget, *The Child's Conception of Physical Causality* (London, 1930).

² Freud, *Civilization and Its Discontents* (London, 1930), pp. 13 ff.

are still incompletely divided, the child is unable to distinguish between the subjective and the objective, between dream and reality, between the perceived and the imagined, between its thoughts and the things thought about. Children and primitives not only believe in magical transformation as it occurs in myths and fairy tales, but also believe themselves capable of performing it. The child at play becomes at will transformed into a horse, the doctor, a burglar or a locomotive. Freud reports the case of a child who, unhappy over the loss of its kitten, declared that forthwith it was the kitten itself, crept on all fours, and refused to eat at table. Similarly, primitives believe that they change at night into certain animals; if the animal is killed, they have to die. Psychological and physical causation are not yet separated; consequently, to wish for an event is the same as to produce it; the child implicitly believes in the omnipotence of thought. And as thought becomes increasingly centred in verbal symbols, words become instruments of wishful evocation. 'Thus originate word magic and symbol magic in general.

This original method of connecting things or events without intermediary series in space and time, is an essential feature of the prelogical mentality; it has been called by Lévy-Bruhl the Law of Participation. In primitive society, whose rites and institutions are the social precipitates of prelogical mentality, the Law of Participation reigns supreme. Obvious instances are the primitive's experience of symbiotic communion between individual, tribe, and totem animal; between a man and his name, a man and his portrait, a man and his shadow; between the deity and its symbol; between a natural event (rain, fertility) and that event enacted in evocative ritual; and so on. All magical practices are manipulations or exploitations of this participative force between things or events, independent of distance, succession in time, or physical intermediaries. Returning to our previous metaphor, we may say that these participative forces are transmitted by the waterways of symbiotic communion; the medium through which they are transmitted, the all-pervading mana, serves as a kind of mystic ether, or as the liquid in communicating vessels. Despite the richness of variations between

primitive societies, the uniformity of these basic features of primitive ritual and thought—as witnessed by the overwhelming mass of evidence in the works of Robertson-Smith, Tylor, Frazer, Lévy-Bruhl, and others—leaves little doubt that we are faced here with a fundamental phenomenon in the evolution of the mental organization of the species.³

At a lower stage of primitive mentality, identification can be achieved in an even more direct way. The physical vigour of animals, the courage and wisdom of other men, is introjected by the simple and drastic means of eating them, or certain of their organs. The ritual totem meal creates not only substantial identity between the clan on the one hand, and the man or animal whom they have “incorporated” into themselves on the other, but also a reinforcement of the substantial identity between the members of the clan. This identificatory rite survives with great vigour to our day in the ceremony of the eucharistic meal which establishes holy communion with the transubstantiated deity, of whose blood and body the believer partakes by swallowing it. Again we find a parallel to this primitive type of introjection in early childhood, in what Freud calls the oral-erotic or cannibalistic phase. The biological connection is obvious between the tendency of sucking at any pleasurable object and the sucking at the breast which reestablishes partial symbiosis between child and mother immediately after the corporeal unity has been broken.

Members of such very early, preanimistic types of society may be described as living in a state of original self-transcendence of con-

³ “As fast as undeveloped people were discovered, or more thoroughly studied, in the most distant quarters of the globe, sometimes at the very antipodes of each other, extraordinary likenesses, sometimes even exact resemblances down to the smallest detail, were found to exist. There were the same institutions; the same religious and magical ceremonies; the same beliefs and customs relating to births and deaths: the same myths.” Lévy-Bruhl, *How Natives Think* (London, 1925), p. 17. To quote only one example: the custom called *couvade*, in which during pregnancy and labour the husband behaves as if he were physiologically affected in the same way as his wife, has independently been observed in primitive societies all over the world. It is a striking instance of the experience of participative communion.

sciousness. Their experience of mystic participation is so strong and immediate that it is directly *lived* in dance and rite, and not yet *symbolized* in myth, spirit, and ancestor worship. Hence the paucity of myths in these early societies whose mentality seems to correspond to the presymbolic, un verbalized level of intelligence. Lévy-Bruhl calls them preanimistic, because they do not yet recognize individual spirits or souls animating people and things, only one all-pervading universal force which acts *through* individual people and things: a homogeneous, ubiquitous substance or energy variously named "mana" by the Melanesians, "wakanda" or "orenda" by different West Indian tribes, and which reaches its sublimest formulation in the Hindu Atman, the "undivided ocean of light."

This cosmic consciousness stands in inverse ratio to consciousness of the ego:

At the time when souls and spirits are not yet individualized, the individual consciousness of every member of the group is and remains strictly attuned to the collective consciousness. It does not distinctly break away from it; it does not even contradict itself in uniting with it; that which dominates it is the uninterrupted feeling of participation. Only later, when the human individual becomes clearly conscious of himself as an individual, when he explicitly differentiates himself from the group of which he feels himself a member, do beings and objects outside himself also appear to him as provided with individual minds or spirits during this life and after death.⁴

The evolution of cosmic consciousness from these primitive forms of symbiosis between the universe and the not yet completely differentiated self, towards the voluntary transcendence of the self (emerging at the other end of the tunnel as it were) in the meditative techniques of Brahmanism, Buddhism, and so forth, reflects the working of the integrative tendency at various levels of mental development. The stability and inner equilibrium of the great Eastern civilizations of the past seem to have been mainly due to this particular form of integration. The contrast between the facilitation of cosmic

⁴ Kruijt, *Het Animisme in den Indischen Archipel*, quoted from Lévy-Bruhl, *op. cit.*, p. 365.

self-transcendence in Eastern civilizations and its thwarting in contemporary Western society will be touched upon later.

THE THWARTING OF THE INTEGRATIVE TENDENCIES

The forces which effect the gradual replacement of the child's subjective by objective reality arise through continuous friction between ego and environment. Hard facts emerge because things are literally hard: they resist and hurt one if one bumps against them; wishes do not replace mountains, not even rocking horses, and dreamed-of porridge does not fill one's tummy. The second type of friction, against the social environment, the friction between the self and other selves, gradually establishes the fact that these latter, too, exist in their own right. The biological communion with the mother is dissolved by a series of separation acts: physical expulsion and cutting of the cord, weaning from the breast, the replacement of tenderness and petting by pedagogic firmness. Both the natural and social environment, things and people, wage a continuous war of nerves against the participative consciousness of the child, and through their attritional effect the symbiotic oneness of the inner and outer world is dissolved; the floods recede, the waterways dry up—though never entirely. In a normal process of maturation, where individuals would grow up as integrated parts of a well-balanced social whole, that is, in a society in stable dynamic equilibrium; in such a hypothetical society, of which history only knows rough approximations, the frictional factor which led to the progressive differentiation of the individual ego would be counterbalanced by integrative forces on the appropriate level, replacing the lower and older forms of symbiotic oneness. But as human society, and our present civilization in particular, are still in a transitional paranormal condition, the self-assertive tendencies of the growing individual are developed onesidedly without adequate development of the integrative counterforces. The protoplasmic consciousness of primitive participation wanes with maturation, as it must; but no cosmic consciousness takes its place as a higher form of self-transcendence, except in a few contemplatives, sages, artists, and poets.

The child in our Western society is taught self-assertive, petitionary prayer instead of meditation, religious doctrine instead of contemplation of the Infinite. The starting point of natural science is awe and wonder, the contemplation of what the Pythagoreans called the harmony of the spheres; but the schoolboy today is taught the natural laws as if they were paragraphs in the penal code. Most of our schools dispense their spiritual nourishment by methods based on the conviction that people can only be made to still their natural appetite if meals are organized in the form of eating competitions: our educational system is mainly based on competitive incentives. Though the child is exhorted to love its neighbour like itself—a rather tall proposition, never meant quite seriously—it is at the same time trained to suppress all natural expressions of affection as sloppy and sentimental by a general “taboo on tenderness.”⁵

In all primitive societies puberty is accompanied by protracted and severe initiation rites whose function it is to impress upon the individual consciousness its collective ties, to receive the newly formed part into the social whole. Rudiments, or rather caricatures, of such rites are still observable in the reception of neophytes in the Army, the Church, or Masonic lodges; but the overwhelming majority of individuals in each generation come to take their place in the social whole by a process of external compulsion—the adventitious factors determining the choice of a profession, a mate, and a pattern of existence—and not by a process of integration. The whole structure of our competitive society collaborates to frustrate the integrative tendencies of the individual, to thwart his potentialities of self-transcendence through cosmic consciousness, social consciousness, and other channels. The result is that the consciousness of modern man is both sharpened and narrowed down into a beam pin-pointed at concrete targets. His bursts of enthusiasm in the romantic period of puberty are like a last euphoric flickering of the self-transcending impulses before they submit to atrophy and shrivel away. The usual silliness of adolescent crazes shows that the social

⁵ Suttie, *The Origins of Love and Hate* (London, 1935).

environment leaves no scope for a harmonious integration ; the only outlets which the craving for self-transcendence can find are the bobbysoxer's hunt for autographs and the boy scout's parody of social service. The spiritual grace of adolescence (for example, in the Greek or Renaissance civilizations) is a measure of the integrative forces active in a given form of civilization.

XIII

General Forms of Self-Transcendence

ALTHOUGH in an unbalanced society the integrative tendencies are forced into retreat as the individual matures, they are never completely defeated. For one thing, environmental friction affects different layers of the personality in different ways. Most affected by the segregative, thwarting influences are the conscious surface layers of the self which are directly exposed to contact with the environment, as it were: while the unsocialized, unverbilized layers become the natural refuge of the frustrated self-transcending tendencies (and, of course, of the repressed components of the self-asserting tendencies). The more remote these layers from the surface of consciousness, the less sharp are the boundaries between ego and non-ego; down in the depths the self remains plastic, the symbiotic canals are still navigable in the dream and other unconscious states. Here are the sources on which poetry, art, and creative thought draw by that specific process of temporary regression, of "*reculer pour mieux sauter*," which we have discussed, and which will occupy us in more detail in Parts III and IV.

Postponing for the moment the discussion of these creative activities, we must now briefly consider some of the more ordinary processes through which the self-transcending tendency manifests itself in everyday life despite the handicaps of our civilization. We shall not attempt a systematic classification of the various terms applied to these processes, such as projection, introjection, sympathetic induction, empathy, identification, and so on; nor of their compound derivatives like charity, love, and so forth. The terms are partly synonymous, partly overlapping, and lack sharp definition.

PROJECTION, EMPATHY AND IDENTIFICATION

The commonest of these phenomena is *perceptual projection*. Processes in the retina and in the optical cortex are experienced as taking place, not where they actually do take place, but yards or miles away. On the other hand, very low-pitched sounds are experienced as reverberations inside the ear, without projection, and dazzling flashes are experienced as occurring in the retina. Ordinary visual and acoustic perception is thus based on a confusion of what happens in the self with what happens outside it—a genuine “perceptual symbiosis” of the ego and the environment. As this is a very useful confusion, facilitating orientation in space, and as some sort of outside event usually corresponds to the projected retinal event, we are inclined to suspect that the alleged confusion and projection are inventions of psychologists to make the simple appear complicated. However, the sudden jumps of a whole mountain range when looked at through either end of a telescope, the racing of telegraph poles past the moving train, afterimages drifting over a projection screen, and other similar phenomena, should convince even a prizefighter that it is sometimes difficult to decide what pertains to the ego and what does not.

A further step in the process of projection leads to *empathy*. An arrow drawn on paper is felt to manifest a dynamic tendency of movement, presumably due to the projection of our own slight eye movements, real or imaginary, into the arrow. A Gothic church spire seems to have a tendency to soar upward, a picture has “movement” or “balance”; the horizon “expands” or “recedes.” A further step, and we project not only movements but emotions from the self into the object. One’s car mounting a steep hill groans and pants, and it is difficult to convince oneself that this is not due to a desperate effort on its part to reach the top; the weeping willow is melancholy, the thunder angry. When we say to a person, “I know exactly how you feel,” we know, in fact, nothing about it; we have projected our own feelings into him or her, guided by certain signs, as in the case of the motorcar.

Such confusion of what happens in the self with what happens in the outside world is a habit so ingrained, that even when made conscious it seems to have little to do with our theme, and will be explained as an "illusion." So it is in a sense; we do not assert that the weeping willow is really contemplating suicide. But this type of illusion is so general and persistent that it must originate in some basic feature of our psychic make-up. The illusions of perceptual projection are strongest in early childhood, when the boundaries of the ego are still blurred; thus Jaensch¹ has shown that the majority of children are able to see "eidetic images," that is, hallucinatory reproductions of objects, which range somewhere between physiological afterimages and memory images in the usual sense. The ability to experience visual hallucinations which are indistinguishable from reality is proportionate to the vagueness of the ego boundaries in children, primitives, psychotics, and mystics. In other words, perceptual projection roughly corresponds with the faculty of emotional self-transcendence. Finally, the projective mechanisms in animism and religion are too well-known from analytical literature to need further stress.

Introjection is regarded as the reverse of projection, though the two processes are often indistinguishable from each other,² and from what is known by an equally ill-defined term as sympathetic induction. Here again the basic phenomena are trivial. If in the middle of a concert a man starts to cough, one's throat begins to tickle. If in a football match the centre forward is about to shoot the ball from a promising position, I kick my neighbour's shin. When somebody bangs his head on the doorpost, we wince; when the heroine on the screen is bereaved, we cry; when as young people we were

¹ Jaensch, *Eidetic Imagery* (London, 1930).

² "In relation to the dissolution of the ego complex, identification can receive a somewhat different interpretation according as ego-components are projected into the outside world or as elements from the outside world are incorporated into the personality. In very fluid dream processes such a distinction cannot usually be very accurately drawn; but in schizophrenia, for example, both possibilities can be most clearly experienced." Strauss, *Kretschmer's Textbook of Medical Psychology* (London, 1934), p. 93.

impressed by some striking feature in a person's manner of speech or deportment, we unconsciously aped it. In other words, we constantly include or introject events and patterns of events from the social environment into the self, act vicariously for the other person, suffer vicariously the emotions of the person with whom we become partially identified. This process exerts a decisive influence on character formation and on social behaviour in general, through the erection of the superego on the foundations of introjected parental authority. The superego may be regarded as a functional sub-whole of the personality, a sub-whole with a relatively high degree of autonomy and presumably structurally localized in the prefrontal cortex.³ Its pattern is determined by excitatory contact with dominant influences in the social environment at a time when the ego was not yet "solidified" and had no clear boundaries. It remains one of the main centres of the tendency towards social integration within the individual; its tyrannies and imperfections reflect the tyrannies and imperfections of the integrative patterns active in the social environment.

The main feature, so far as distinctions can be drawn, which distinguishes "introjection" from "sympathetic induction" is that the phenomena of the latter type are more transitory, intense, and, in so far as they affect overt behaviour, of a rather spectacular character. Laughter and yawning are infectious; so are sexual excitement, cruelty, hysterical and epileptic fits, delusions, hallucinations, and religious ecstasy. The most pronounced form of self-transcendence through identification occurs in *hypnosis*, where "the functions of the ego seem to be suspended, except those which communicate, as though through a narrow slit in a screen" (Kretschmer) with the hypnotizer; this communion or rapport with an outside person is much stronger than the connection with the suspended parts of the ego itself; in fact, it is nearly absolute. Like the dream, with its fluctuating self-transformations and identifications, the

³ Cf., among others, Brickner, *The Intellectual Functions of the Frontal Lobes* (New York, 1936); Brain and Strauss, *Recent Advances in Neurology* (London, 1942).

hypnotic state abolishes the boundaries between self and nonself; or rather, it effects a new parcelling-out of the world into psychodynamic units which cut across those boundaries, according to laws which differ from the laws of the waking state. Among the various states related to hypnosis, special interest attaches from our point of view to the spontaneous imitation compulsion known as *lata*, "into which a certain proportion of persons of the Malay race are liable to fall. These persons, if their attention is suddenly and forcibly drawn to any other person, will begin to imitate his every action and attitude, and may do so in spite of their best efforts to restrain their imitative movements."⁴ Similar phenomena have been observed among other primitives.⁵

In *Mass Psychology and the Analysis of the Ego*, Freud laid great stress on the kinship between hypnosis and being in love on the one hand, hypnosis and group behaviour on the other. In cases of extreme enamouredness, the person of the beloved becomes "introjected" and, in the Freudian jargon, replaces the superego.⁶ The poetry—or pathology—of this mood consists in the same total fascination by and subordination to the beloved object as in the case of the hypnotic rapport, except that in hypnosis the symptoms are even more sharply discernible and more intense. The hypnotizer—as the beloved—is the only object to whom attention is paid, and who at the same time is unconditionally obeyed; the rest of the world is

⁴ McDougall in his article on hypnotism in the *Encyclopædia Britannica*, 13th ed., Vol. XII, p. 201.

⁵ Behaviourists explain all the phenomena of identification, and lately even hypnosis, by conditioning. There is, of course, no reaction without conditioning, internal or external; the term explains everything and nothing. The process by which Pavlov's dog reacts to the stimulus "gong" with salivation, and the process by which Dante reacts to the stimulus "Beatrice" by writing the *Divine Comedy*, have certain features in common, and to demonstrate those which they have in common is an important task. But to neglect and deny the existence of those specific organizing relations which emerge on higher levels of integration is a method comparable to that of chemically analysing the components of a human body, while neglecting and denying the specific laws of biology, embryology, etc. Behaviourism has rendered a service to science by its puritan intolerance towards introspectionist debauch; having fulfilled this task, it became sterile like all puritan orthodoxy.

⁶ Freud, *Massen Psychologie und Ich-Analyse*, *Ges. Werke*, XIII, p. 125.

blurred or screened—as in the case of Fabrice in *The Charterhouse of Parma*, who, through a narrow slit in the screen covering the window of his prison cell, gazes for hours at the figure of Clelia Conti. Thus the hypnotic rapport may be described as an “unrestricted, loving surrender of the self under exclusion of sexual satisfaction.”⁷

SELF-TRANSCENDENCE AND GROUP PSYCHOLOGY

The hypnotic situation may also serve as a starting point for the study of mass psychology. Hypnotizer and hypnotized may be regarded with Freud as a “mass formation of two,” but this naturally refers only to masses of a primitive type, that is, to crowds under the emotional sway of a leader. Such herds (both in the literal and politically metaphorical sense) represent the lowest level of social integration; they correspond to the simple axiate type of organism, in which the integrative principle is embodied in a single individual—the tip—which controls the rest. It is this type of crowd or mob to which Le Bon’s famous descriptions apply. Such crowds are fanatical and single-minded, as their integration can only proceed along a single social gradient; all individual differences between its members, and the subtler mental processes which account for these, are temporarily suspended. The dominant impulse of the mass is thus mentally on the level of its lowest common denominator, while dynamically it has a maximum efficacy as the impulses of the members of the crowd are directed through narrow “slits” which all point in the same direction—hence their experience of being parts of an irresistible power. This experience of “part-ness” within a dynamic whole leads at the same time to a suspension of individual responsibility, which is replaced by unconditional subordination to the integrative centre of the whole, that is, the leader of the crowd. It further entails the temporary renunciation of all self-assertive tendencies, and the readiness to subordinate personal to collective interests. Such primitive and powerful integrations produce the paradoxical phenomenon of the individual parts tem-

⁷ Freud, *op. cit.*, p. 126.

porarily displaying an altruistic behaviour to the point of self-sacrifice, which at the same time may manifest itself in bestial cruelty towards the enemy or victim of the whole. In other words, self-transcendence of the part may serve as a *vehicle* for the most ruthless kind of self-assertive, aggressive behaviour of the whole. We have met with this vehicle function of the self-transcending tendencies before, and shall have more to say about it in due course.

The main factors of progress from the primitive herd, mob, or crowd to higher forms of social integration—the tribe, family, clan, city-state, national state, and the first tentative international institutions—have already been mentioned in Chapter XI. We saw how personal control becomes replaced by institutional control; the integrative centre is no longer corporeal, but a functional pattern of traditions, rites, customs, and laws; the simple axiate type of organization is superseded by a multiaxial, complex pattern of social gradients or lines of force. The complexity of these forms of social integration is reflected by the complexity of their differentiation: between the whole, for example, the sovereign state, and its individual parts, a hierarchy of functional sub-wholes is interpolated—castes, professional classes, trade unions and bureaucratic “machineries,” semiautonomous organs of provincial and local government, parties, cliques, and families. However much the level and pattern of these social organisms vary, their coherence is primarily due to the same integrative tendency under different labels, such as family attachment, loyalty to tradition, *esprit de corps*, comradeship, patriotism, humanism. Enlightened self-interest, that is, the voluntary mutual adjustment of the self-asserting tendencies, does certainly contribute to the shaping of the integrative pattern on higher levels, but could never alone account for the emotional intensity of attachment to tribe or country, the spontaneous denial of self-interest, in short, the self-transcending behaviour of the individual in a stable social whole. (Theoretically, the Marxian Communist should go to the barricades from purely utilitarian motives, and sacrifice his life out of “enlightened self-interest.”) We may call the integrative tendencies an “instinct of gregariousness” or “social

conscience" or the "superego" or "social libido"; we may even, if fond of sonorous tautologies, call it "de-sexualised sexuality"; these are verbal quibbles. The essential point is that we regard the integrative tendencies on various levels of the social hierarchy as the continuation of the integrative tendencies on the inorganic, organic, and organismic levels, as manifestations of a primary tendency in the phenomenal world.

New forms emerging at any evolutionary level are at first tentative and unstable. This is equally true of those large and complex structures, the protein molecules, at the bottom of the biological hierarchy, as it is true of the first multicellular colonies and the first social integrations. Their existence as functional wholes is precarious and uncertain; under conditions of stress exceeding certain limits, they break up; that is, the parts become autonomous and may associate with others to build different wholes (for example, the changing alliances of feudal barons prior to the emergence of stable ethnic states). In his work *The Group Mind*, McDougall mentions a number of conditions for the development of higher forms of social organization, such as: material continuity of the group (as opposed to transient mobs of the Le Bon type),⁸ continuity of its institutions, the relation of the group as a whole to other groups, differentiation and specialization within the group, the individual's conception of the nature and function of the group, and so on. These criteria are fairly obvious except for the last, for the coherence of the group does not depend on an intellectual analysis and conscious grasp of its function by the individual, but by his emotional identification with it. More exactly, the integrative pattern of the group—its leading ideas, institutions, beliefs—are reflected by corresponding patterns or functional sub-wholes in the individual's mental make-up; and these are not the result of conscious reflection, but the deposits of identificatory processes. The superego, or social conscience, or knowledge of good and evil, or whatever we may call it, should be regarded as such deposits; they are functional attune-

⁸ Le Bon's generalizations were mainly based, as has been repeatedly pointed out, on crowd behaviour during the French Revolution.

ments of the individual mind to the integrative pattern of the social whole.

THE FOUNDATIONS OF A "NATURAL" SYSTEM OF ETHICS

Ethical conflicts are particularly frequent in emergent, complex social bodies which are still in a period of instability, which are not yet consolidated as functional wholes and whose integrative powers are accordingly weak; or in declining social bodies whose integrative control over the parts is diminishing. In such cases several integrative patterns or partial identifications may compete within one individual's mind. This may lead to conflicting loyalties, for example to state and church (this conflict was most acute at the time when the national state was still a precarious and unstable "whole"); to nation and social class (the Condéist aristocracy or Communist proletariat turning against their own country); to family and "cause"; and so on. In general, the decision will go against the higher, more recent and unstable form of integration—as, for instance, in the present conflict between the tendencies towards international co-operation versus national sovereignty. In the critical periods of history, it is frequently even doubtful which integrative pattern will emerge as a functional whole and which will figure as its sub-whole in the hierarchy; in other words, there are competing social gradients, as, for example, during the religious wars when it was doubtful whether the map of Europe would be finally drawn along religious or ethnic lines. Such phenomena correspond to the behaviour of primitive organisms under paranormal conditions, where it depends on the environmental situation which of the competing excitation-gradients will form the main axis of structural alignment.

Within the individual mind the effect of the competing social gradients may be described as a conflict between two partial identifications—the subject behaves as if he were simultaneously exposed to the contradictory commands of two hypnotizers. On a lower level, and by coarser methods, similar effects were produced by conditioning animals to two contradictory response patterns to the same stimulus; the resulting abnormal behaviour is known as

experimental neurosis. Ethical conflicts are experimental neuroses on a higher level, produced by abnormal conditions in the experimental laboratory which is society. As long as the conditions remain abnormal, no stable hierarchy of values can emerge to serve as a guide in conflicts of this kind, which, for this reason, are in principle insoluble. Hence in periods of transition ethics must remain a pseudoscience.

The above considerations only apply to situations in which two or more patterns of integration compete and the shape of society as a whole remains in flux. The term "ethical conflict" should be reserved for the dilemma between two possible directions of integration, and should not be applied to the basic polarity between self-assertive and integrative behaviour as such. In relatively stable periods of history, where the social whole approaches a state of dynamic equilibrium with a single, well-defined integrative pattern, no ethical conflicts in the correct sense of the term arise, only stresses of varying intensity between the self-asserting and self-transcending impulses in individuals. In such societies with a stable pattern, the ethical imperative is identical with the "integrative gradient," and is in need of neither utilitarian nor theological props. Just as the imperative of sexual ethics, to give and receive pleasure, is inherent in the sexual branch of the integrative tendency, and is not derived from utilitarian considerations or revealed commandments, so the ethical imperatives of social behaviour are "natural" or inherent in the tendency towards higher forms of integration of living matter. The "ethical imperative" of a tree is to grow straight towards the light and to send its roots deep into the soil, while spacing its branches and leaves at proper intervals to exclude all mutual interference. But, then, a tree is a dynamic whole in a standardized environment, and human society is still remote from that state.

Among the various types of ethical conflicts, one of the most significant is the dilemma between cosmic self-transcendence and social integration. The former implies quietism, detachment, and acceptance of social evil; the latter, at a period of violent regenera-

tive adjustments of society, implies action, attachment, and becomes frequently a vehicle for cruelty and ruthlessness. In a society in dynamic equilibrium, there would be no conflict between these two modes of integration; under paranormal conditions such as ours, the conflict is practically unbridgable. I have written about this dilemma elsewhere;⁹ we shall meet it again in Chapter XV of the present volume. But a detailed examination of the integrative tendency as a basis of a natural system of ethics must be postponed to Volume II.

EXTRA-SENSORY PERCEPTION

This short survey of the self-transcending tendencies in the individual would be incomplete without some mention of telepathy and kindred phenomena, conveniently grouped by Rhine under the term "extra-sensory perception" (ESP). The work of Rhine and his collaborators at Duke University during the past two decades¹⁰ has put the evidence for ESP on a scientifically solid footing. The facts are public, that is, verifiable and predictable within the limits of statistical calculus—much as the results of a gamma-ray bombardment of atoms in a Wilson chamber. The main difference between the kind of facts dealt with by physics and by ESP research is that descriptive theories exist for the former group (though many of these are no more than *ad hoc* hypotheses, formed and reformed during the last few decades as new facts were observed, and often not free from contradictory implications), while for the other group no even remotely satisfactory theory exists so far. Warcollier¹¹ has aptly compared the present state of ESP research with its bewildering data and absence of a theory to account for them, to the state of physics at the time of the discovery of radioactivity, which in less than ten years completely upset our conception of the nature of matter. In 1919 Soddy summarized this revolutionary process: "Slow, irresistible, incessant and inchangeable, so feeble in ap-

⁹ *The Yogi and the Commissar* (London, 1945).

¹⁰ Rhine, *Extra-Sensory Perception* (London, 1935).

¹¹ Warcollier, *Experiments in Telepathy* (New York, 1938).

pearance that they were not discovered until our time, the phenomena of radio-activity appear already as the ultimate cause of physical evolution." *Mutatis mutandis*, the phenomena of ESP, at last removed from the realm of hearsay evidence, fraud, and sensationalism—just as alchemy was transformed into chemistry, astrology into astronomy, in their own time—contain the seeds of a profound change of our basic scientific and philosophical concepts. Those acquainted with the more recent work of Rhine, Tyrrell, Hettinger, Soal, and so forth,¹² will find it hardly an exaggeration to say that we seem to be on the eve of a kind of Copernican revolution.

For the time being, however, no theoretical framework exists to account for the phenomena of ESP, and any comprehensive hypothesis must be premature.¹³ Certainty only exists on the negative side, that is, in the elimination of all intermediary agents of the type known to physics up to date. The reasons which have led to the breakdown of the "brain-wave theory" are in short the following.

a) Physical radiations and field effects (electromagnetic, gravitational) decrease with the square of the distance, whereas no such effect, and some evidence for the increase of the effect with distance, was found for ESP phenomena.

b) It was found that the two main branches of ESP; namely, "telepathy" (ESP perception of the mental events of another person) and "clairvoyance" (ESP perception of nonmental, physical events) go, as a rule, together in any given subject, and that it makes little difference in regard to statistical results whether the task put to the subject is "thought reading" or "fact reading"—for example, whether he has to name a series of cards turned up by another person in a distant room, or whether he has to guess them when turned up by a machine. Hence the wave theory would have to assume that the ink figure on the card in one case emits the same

¹² For a comprehensive survey and bibliography of the subject, see the article "Parapsychology" in the *Encyclopaedia of Psychology* (New York, 1946).

¹³ A sad example is, among others, Carington's book on telepathy, in which the record of the author's excellent experimental work is spoiled by speculative conclusions of an embarrassing dilettantism.

type of radiation as the mind of its beholder in the other case—which is clearly absurd.

c) In some experiments the task consists in naming the order of cards in an undisturbed pack “down through”—which ought on the radiation theory to “give a hopeless jumble of waves” (Rhine).

To call these phenomena supernatural or occult is misleading. We may as well grant the attribute “occult” to the germ cell because it contains the blueprint of its future, or to the electron because it behaves both as a corpuscle and as a wave, or to the universe as a whole because its space is curved. Whenever we are tempted to call a process mysterious, what we really mean is either that it transcends the mechanistic push-and-pull physics of the last century, or that it transcends the inventory of physical relations and relata known up to the present. Spontaneous radioactivity belongs to the first, ESP to the second type of mystery. But “out of Nature we cannot fall”; and the difference between a “mystery” and a “law” is much the same as that between the appearance of an anonymous stranger in the parish and the description of his personalia in the Aliens’ Register. There one can see written, in due course, that the stranger has a father, a mother, a name, and a date of birth, and feel conveniently reassured that now one knows all about him.

The wave theory of ESP having broken down, all we can say with certainty is that there is evidence for the existence of types of communication or participative bonds between individuals beyond those contained in the theoretical framework of contemporary science. Among the various hypotheses suggested, that of the “collective unconscious” as a kind of common pool or substratum with which all individuals remain somehow connected—as a group of apparently isolated islands are connected through the ocean bed—seems to this writer the most attractive; but that is, of course, entirely a matter of taste. At present there is no evidence either for or against such a hypothesis, which, moreover, explains nothing. It does not explain clairvoyance unless we expand the collective subconscious into some kind of “absolute pool” embracing all and everything, animal, vegetable, and mineral; and even so we are no

closer to an explanation of the business of "fishing" in that absolute pool than we were before. Actually, as Rhine has pointed out, the collective unconscious, instead of simplifying explanation, rather complicates it.

The main argument in favour of a hypothesis on some such lines is again biological. The behaviour of insect societies, and in particular that of the white ant, makes it difficult to avoid the conclusion that it is activated by some kind of collective "mind" or pool, which coordinates it into a functional unit, while the individual plays more or less the part which the red and white corpuscles and other specialized sub-wholes play in the organism. But it is still a long way from the "group mind of the ant state" (whatever that might mean) to that kind of generalized absolute or universal pool which would have to be assumed to cover all the phenomena of ESP. We repeat that from the standpoint of scientific method, nothing warrants such a wild generalization. It nevertheless has had a strong attraction from time immemorial on the human mind, and is at the basis of all religious experience, particularly in its purer, Eastern forms. Doctrines and dogmas, the belief in anthropomorphic deities, in resurrection, judgment, and so on, are all secondary elements, mere arabesques on this one fundamental experience of universal oneness or unity-in-diversity. It is reflected in the primitive's and the child's experience of "participation"; in the mana or shared identical stuff which cements the clan together by the symbiotic communion of its members with each other, with their ancestors and their totem; a common substance which is both matter and energy or spirit, and bridges all distance in space-time. It is worth noting that there is a marked convergence between this age-old belief and the modern physical conception of the universe as a multidimensional continuum in which all phenomena may be described in terms of a unitary space-time geometry, and in which apparently substantial events dissolve into patterns of ripples, moving, as it were, across the veil of Maya—that is, the phenomenal world.

It should be clear, however, that mysticism is an emotional experience which, if formulated in verbal symbols, leads inevitably to

tautologies—"all is One and the One is all," and the like. These are sometimes poetical, but mostly trite and embarrassing, and their logical discussion leads nowhere. The only firm facts in this nebulous realm are the existence of the oceanic feeling as a datum of emotive experience, its genetic derivation from the mentality of the primitive and the child, and its demonstrable connections with the phenomena of projection, introjection, hypnosis, group psychology, and so on. Among these various manifestations of the self-transcending tendencies in the individual, the phenomena of ESP occupy a particular position in so far as no scientific theory can up to now account for them. The reader has been repeatedly warned that the hypothesis of the universal pool has only been mentioned here because of its traditional attractiveness for the human mind, including the author's, but without advocacy and without even the pretence that it explains anything. The general occurrence of the oceanic feeling, of the tendency towards cosmic self-transcendence, is a fact; the phenomena of ESP are facts; but whether and how these various facts are connected, we do not know as yet.

XIV

Ambivalence, Vehicle Function, and Sublimation

IN THE course of the last few chapters, a number of objections may have arisen in the reader's mind, the most obvious of which are: (1) that the listing together of such different phenomena as, for example, optical projective illusions, hypnosis, and socialized behaviour as manifestations of "self-transcendence" is arbitrary; (2) that some of the phenomena listed under this heading have a markedly aggressive, that is, self-assertive character; (3) that some of these phenomena constitute a regression to the infantile-primitive stage, and should not therefore be called integrative.

We shall meet these objections one by one.

(1) INTRINSIC NATURE OF THE SELF-TRANSCENDING TENDENCY

Of course each of the listed phenomena has a different neural mechanism. Their common denominator is merely the *readiness* to fuse the self or certain aspects of it with the nonself by projection, introjection, and other participatory processes. This inclination, however, is so general and fundamental to the evolution of the race, so evidently continuous with the integrative processes on lower biological levels and with primitive and infantile mentality, that, even if we were to dismiss all the phenomena in question as illusions, the persistence of, and susceptibility to, such illusions would point to an inherent disposition or tendency towards them. And the existence of such an inherent tendency is all that is asserted.

In a similar way, the phenomena of blinking in a dazzling light, of getting angry when the fishmonger is sold out, of growing pale at the whizzing of a bomb, and of starting a lawsuit if libelled, are all processes with different neural mechanisms; but they all point to an inherent disposition or tendency to behave as if the self were something precious and unique. This may again be an illusion, as many sages and totalitarian politicians tell us, but that doesn't alter the fact that there is an inherent tendency towards self-assertion.

(2) THE AMBIVALENCE OF EMOTIONAL STATES

In answer to the second objection, it must be stressed once more that most emotional states are blends in which both self-assertive and self-transcending tendencies participate. These tendencies only appear in pure form in the rare cases which approach the respective poles of behaviour: in blind rage or panic on the one hand, in pure aesthetic or mystical contemplation on the other. On all intermediary latitudes we find ambivalence, that is, coincidence of the two tendencies, the prevalence of one or the other varying according to circumstances.

The prototype of an ambivalent, or dual-controlled emotion is *love*. The integrative function of sexual love in the service of the perpetuation of the race needs no further emphasis; the participatory, self-transcending processes which accompany it have been discussed in the previous chapter. But at the same time the processes of sexual selection involve a competitive, pronouncedly self-assertive behaviour which is not always confined to the male. Not only towards his competitors, but in the act of copulation itself, the male is, as a rule, bound to display a certain amount of aggression—partly for anatomical reasons and partly because the same selective factors which are required to defeat competition may determine the female's response, a certain amount of "masculine aggression" being made a condition of consent. The self-assertive and self-transcending components in sexuality correspond roughly with the distinction made by some sexologists between the detumescent and contractile components of the sexual drive, the former tending towards possession

or submission and glandular relief, the second towards tenderness and identification. That the self-assertive or aggressive component of sexual behaviour is not confined to the male, as our Victorian forebears were inclined to believe, is demonstrated not only by such extreme examples as those in which the male is partly or entirely devoured or otherwise killed during the act. As Marston¹ has pointed out, it is largely a matter of point of view whether copulation be regarded as the male "possessing" his partner, or the female "capturing" him—both in the direct anatomical, as well as in the metaphorical sense; and it is equally obvious that acts of provocative display by the female are as competitive and self-assertive as the response to them.

In the *feeding drive*, the ambivalence of the two basic tendencies is less obvious, but not difficult to trace. The aggressive component is evident, and is symbolized by language: food is "attacked"; one "puts one's teeth into it," and so forth. The teeth are, even in some granivorous animals, the main instruments of aggressive-defensive behaviour; biting and snapping are regarded as the prototypes of aggression.

On the other hand, the socially integrative function of shared meals is of great importance. The ritual significance of the totem meal as a means of self-transcending participation with the totem animal and with the other members of the tribe has already been mentioned; its echoes survive in ceremonial banquets, funeral and wedding feast, and so forth. In primitive society the hunger-stilling function of such ritual meals is the less important, the "magical transformation" thus effected the more important aspect. In the extreme case of ritual cannibalism, the aim is to incorporate the virtues of the slain enemy, which is an act of "identification through introjection." Among a number of cannibalistic tribes, to be eaten is actually regarded as a great honour—almost, one would say, an act of love—as in the case of the praying mantis.

The ambivalence of the feeding function can be found on every

¹ Marston, *Emotions of Normal People* (London, 1928).

level. The infant's habit of putting everything it likes into its mouth is at least partly determined by its groping for the lost contact with the mother. The mouth remains a preferred zone of affectionate bodily contact in billing, kissing, and playful biting. The German idiom "*Ich habe dich zum Fressen gerne*" (I love you so much I could eat you) is paralleled by the English "devouring love," and expressed in the behaviour of young mothers mock-devouring the baby's fingers and toes. In these and other forms of erotic, tender, or playful behaviour, the unconscious tendency to introjection by incorporation is more or less implicit; it becomes completely explicit, and reaches its apotheosis, as it were, in the sacrament of the Holy Communion with Divinity devoured.

The so-called *instinct of self-preservation*—a confusing term which is fortunately disappearing from the textbooks—is not a definite drive but the sum total of the organism's adaptative reactions. As the individual cannot survive without some form of social integration, *self-preservation in fact always implies a component of self-transcendence*. The paradox disappears when we remember that the individual is both a functional whole relative to his organic parts, and a sub-whole or part relative to his social and natural environment. He can only "preserve" himself if a certain balance between these two aspects prevails.

Finally, we have the same ambivalence in the processes of *social integration*. The activities of the philanthropist, the social worker, or nurse are always a mixture of self-transcending and unconsciously self-assertive impulses (vanity, repressed desire for domination, and so forth). Heroism may have a component of sadism, self-sacrifice of masochism, that is, aggression deflected onto the self; personal ambition is an indispensable ingredient of political activity, even of the most idealistic kind.

In a balanced society, that is, a civilization slowly evolving under fairly stable environmental conditions, we would find a continuous scale of integrative values with contemplation and competition as the opposite poles, and the various shades of integrated social behaviour between them. Nearest the top or contemplative pole of

the hierarchy would range love of humanity in general, that is, the permeation of all social relations with the oceanic feeling; while art and scientific research would serve as different modes of its expression with a varying admixture of competitive impulses. Lower down the scale we would find the successive forms of integration in the successive sub-wholes of the hierarchy—the state, profession, parish, family—each with a stronger possessive and competitive factor, until we finally reached the other pole, purely selfish competition. An ideal society would form a continuous hierarchy from some kind of global federation down to the lowest sub-whole, the family (though not necessarily of the present monogamous and rigid type). In such a society individual stresses and conflicts would still occur, but they would be conflicts of relative “right” against relative “wrong” on one integrative gradient, and not ethical conflicts in the sense defined in the previous chapter, that is, conflicting social integrations of “right” against “right.”

THE VEHICLE FUNCTION

The distinction between “social” and “asocial” behaviour is thus seen to be a matter of degree, dependent on the prevalence of the integrative or self-assertive impulses in the compound behaviour pattern. While a moderate degree of polarization is indispensable in the healthy organism, excessive social stress leads to a weakening of integrative control, and to “asocial” behaviour of the individual part. Under proper integrative control the self-assertive drives—ambition, competition, sexual conquest, and so forth—will be harnessed to the social purpose, as the suprarenal glands are harnessed to the functions of the body; under excessive stress these drives will degenerate into asocial extremes: ambition into tyranny, competition into ruthlessness, sexuality into hypertrophied and pathological forms—just as in an emergency the adrenal secretions will give rise in the body to panic or rage.

Under fairly normal conditions, however, the aggressive or competitive impulses of the surgeon, the politician, the policeman, the

explorer, or the butcher serve as *vehicles* for the needs of the social whole. And vice versa: the self-transcending tendencies of the individual may serve as vehicles for the aggressive behaviour of the social whole to which he belongs. Soldiers rarely have individual grudges or feelings of personal hostility against the "enemy." Mechanized modern warfare in particular leaves little scope for the release of individual aggression. The Germans who operated the gas chambers, plus those who even knew about them, were a small minority. The great majority of the individuals serving destructive mass movements in modern history brought to their cause the same devotion and self-sacrifice as they would have to a nobler ideal—and the white corpuscles of a killer function like those of a saint.

These faulty integrations cannot be explained in terms of individual psychology, only in terms of the behaviour of social wholes—their history, economical and institutional structure, and their relations with other social wholes in the geopolitical framework. These are outside the scope of our enquiry; the point to remember is that *both the self-assertive and the integrative tendencies of the individual may serve as vehicles for the opposite tendencies on the level of the social whole*. Or, in the words of Pope: "The worst of madmen is a saint run mad."

(3) SUBLIMATION AND REGRESSION

We now come to the third objection mentioned at the beginning of this chapter. We saw that the phenomena of identification and self-transcendence are best observed in children and primitives; hence it may be argued, as did Freud, that they are regressions to earlier stages of development in the individual or the race.

The answer is made easier if we first turn to the self-assertive tendencies, whose manifestations are more familiar to traditional psychology. If I wish to show that competition—for instance in commerce—is rooted in the self-assertive tendencies, I shall have to go back to more primitive forms of competition amongst animals and savages, where the connection between competition

and the struggle for survival is more obvious. I shall then be faced with the same objection; namely, that competition is obviously a regression to a more primitive stage and can therefore have no part in the evolution of the individual and the race—which, however, it very obviously has. The fact that I am “going back” to find striking instances of a tendency, does not prove the regressive nature of that tendency itself.

At the root of the whole argument is the traditional ambiguity of the term “instinct.” We are in the habit of talking of “dark,” “base,” or “blind” instincts, of “lapses into instinct behaviour,” and so forth, and generally ignore the fact that if the word “instinct” has any meaning at all, it means the dynamic driving power behind all biological evolution. These drives are certainly “conservative” in the sense that they tend to react to the same situation always in the same way. But the same situation never recurs. Each reaction changes both the organism and its environment; and after each relevant change the organic tendencies (“tendency” is derived from *tendre*, to stretch, that is, from organic stresses) can only manifest themselves within the pattern imposed by the structural relations of the level reached. In a game of chess, for instance, the tendency to defeat the opponent can only express itself in conformity to the rules of the game; the shorter solution of clubbing the partner on the head does not even need to be repressed; it does not occur. This process of the *adaptation of tendencies to higher levels of organization*, or evolutionary sublimation, is simply a consequence of the fact that a “tendency” or “stress” is not a metaphysical absolute or an independent agent, but a dynamic state of a given organism in a given environment; and this state or function naturally depends on the pattern of the system in which it operates.

To return now to the integrative tendencies: these undergo the same process of adaptation or sublimation as their opposites. The primitive forms of symbiotic communion with the mother are succeeded by adult forms of love; the primitive forms of self-transcendence through magic by the higher forms of self-transcendence in art; the primitive participations of the herd or tribe by the higher

forms of social integration. But in all these transformations the integrative stresses continue to point in the same direction, as it were, just as in civilized forms of competition the basic tendency towards self-assertion remains true to itself.

To talk of the "sublimation" or "adaptation" of instincts to higher forms of organization is thus merely a convenient way of expressing the fact that in more complex systems more complex reaction patterns arise as a consequence of the interaction of internal and external environment. *Sublimation is not something which happens to, or is imposed upon, an independent agent called "instinct"; it is merely a measure of comparison between the relative complexities of organic stresses on different levels.* "Sublimation" is a convenient term if used with the above meaning; otherwise it leads to all sorts of confusion, particularly if used as a synonym for "substitution" (Ersatz) as the Freudians do.

Regressive behaviour occurs when the stresses between organism and environment, and consequently between whole-tendencies and part-tendencies, exceed a certain limit. If I club my chess partner on the head, this will be taken as a sign that my equilibrium has been disturbed. We saw before that the regressive behaviour of the part (in this case, the individual) is a consequence of its "relative isolation" from the integrative control of the whole (in this case, the social environment and its reflection in the subject's mental make-up). We further saw that such relative isolation or autonomy of the part may be due to various causes: weakening of the integrative forces, faulty integrations (of the individual through early childhood experiences, or of society as a whole), local excitation (trauma), and so forth. According to which factor is dominant, the regressive process will operate and manifest differently. The subject's behaviour may be dominated by overtly self-assertive, aggressive tendencies which are no longer counterbalanced by social integration; or environmental conditions may cause a fixation of the subject's self-transcending tendencies at the infantile level of wish-dream magic and craving for the mother's womb; or he may live in an "abnormal equilibrium," as it were, like the obsessional type of neurotic.

Finally, we saw that temporary regression to lower levels may serve the purposes of regenerative equilibrium—manifested in the adaptative transformations of society, in the therapeutic readaptation of the maladjusted individual, and in the artist's creative activities.

XV

Civilization and the Pleasure Principle

BOTH BIOLOGICAL and psychological considerations have led us to conclude that the dominant aspects of the evolutionary process are the twin phenomena of differentiation and integration, which under conditions of stress become polarized into the conflicting tendencies towards self-assertive and integrative behaviour. As an excessive display of aggressive-defensive behaviour always implies a weakening of the integrative bonds, it is possible that the main cause of the crisis in our civilization may be the atrophy of the integrative tendencies in the social whole, and not, as Freud suggested, the suppression of man's "destructive instinct"—for whose existence no evidence can be found.

Since treatment depends on diagnosis, it is obvious that this suggestion has far-reaching practical implications both for individual therapy and in the social and political field. Our present aim cannot be to propound practical remedies, but to establish the validity of the diagnosis. The following considerations may serve this purpose, though they necessitate some detours.

THE NEGLECT OF THE SELF-TRANSCENDING EMOTIONS

The basic tendencies of the organism are concretized on each level in specific "needs" or "instinct drives." The adjustment of these drives of internal origin to the conditions of the external environment is effected by means of bodily impulses coordinated by the

nervous system. Impulses thus tend to abolish or to diminish the organic stresses between internal and external environment. Emotion may be described as the subjective experience of a need or stress.

Now, a fact of great importance about impulses and emotions is that they may be directed towards muscular activity, or on the contrary, towards muscular relaxation and tranquillity (compare Chapter VIII). Sadness, wonder, some forms of joy, worship, contemplation, and other emotional states reflect impulses which are consummated not in overt (skeletal) but in *internal* (visceral and glandular) behaviour, with crying as an extreme form. Curiously enough (as mentioned before), we apply the term "moving" to the very experiences that give rise to emotions which do not "move" us to any action, but to silent internal processes.

This fact, so easy to observe, has been consistently neglected by psychologists. The reason for this may be partly that psychology was, and still is, under the domination of the great ideological currents of the nineteenth century, with their emphasis on the biological struggle for existence, the survival of the fittest, and so forth, and in the sociological field on competition, acquisition, domination, and imperialist expansion. In consequence, the attention of psychologists became almost exclusively focused on the self-assertive tendencies, expressed by impulses towards violent activity; while the contemplative, passive, self-transcending impulses received little or no attention. Thus the term "emotion" became practically synonymous with the experiences of hunger, rage, and fear, while "love" entered the picture under a purely sexual aspect, and with strong emphasis on the competitive element.¹

¹ The *ambiance* of this "Darwinistic psychology" is reflected with unconscious humour in passages like the following, from Dr. Crile's *The Origin and Nature of the Emotions*, published 1915: "When the business man is conducting a struggle for existence against his rivals, and when the contest is at its height, he may clench his fists, pound the table, perhaps show his teeth, and exhibit every expression of physical combat. Fixing the jaw and showing the teeth in anger merely emphasize the remarkable tenacity of philogeny," etc., etc.

The acquisitive and competitive society of the nineteenth century did not leave much scope for manifestations of the self-transcending emotions, nor did its scientific world view facilitate their recognition. The social conditions during and after the Industrial Revolution increasingly thwarted the integrative impulses of modern man, discouraged contemplation, atrophied his oceanic feeling, and tended to transform him into a purely self-assertive animal. Where social integration and emotional self-transcendence nevertheless did manifest themselves, as in the Victorian forms of religion, patriotism, or "pure" love, they were blended with so much prudery and hypocrisy, and served as vehicles for such deformed ideals (faulty integrations) that the scientist could hardly be expected to put them on a par with the hard and fast biological phenomena of the sexual or hunger drives, and dismissed them with a shrug as pseudoemotions and purely conventional attitudes.

A second reason for the nonrecognition of the self-transcending emotions is the misconception that *all* emotions must tend "to beget muscular activity" (Spencer). Now obviously all emotions are correlated to physiological impulses which can be described in terms of "stimulus" and "response"; but in the older schools of experimental psychology the ideal prototype of stimulus was a pin, and of response, a twitch. Towards the end of the century, the James-Lange theory stressed the decisive importance of nonovert, internal, visceral behaviour in the mechanism of emotion; but nevertheless the implicit assumption remained that a "true" or "major" emotion is characterized by muscular impulses: to hit the stimulus on the head, or run away from it, or rape it if the stimulus happens to be of the female sex. Emotions reflecting impulses which do not tend towards overt behavior and muscular activity were slurred over as "moods" or "sentiments," and it was implied that they were not "real" emotions, but formed a vague and somewhat suspect category apart. When Cannon published his classic, *Bodily Changes in Pain, Hunger, Fear and Rage*, and showed that in the self-assertive type of emotion the sympathico-adrenal system was responsible both for the visceral changes and for the stimulating effect on skeletal

muscle, this was implicitly taken as a further proof that *all* emotion was of the active, hit-run-and-devour type.²

If the term emotion is thus confined to the active, self-assertive type, then the self-transcending, "moods" or "sentiments" remain unaccounted for in psychology. If, however, we define the psychological aspect of emotion as the experience of a need and of the adaptative impulses generated by it, then we must recognize that some of them tend towards both internal and overt activity through heightening of muscular tone, while others lead to a lowering of muscular tone and are consummated in internal processes only—such as the production of sleep and sleeplike states, slowing of the pulse and respiration rate, lowering of the blood pressure and blood-sugar level, inhibiting sympathico-adrenal excitation, facilitating peristalsis, heightening the threshold of some sensory receptors and lowering the threshold of others, innervating the lachrymal glands, and so on. Some of the more extreme forms of visceral behaviour in self-transcending emotions have been observed in Indian mystics, but on the whole the symptomatology of the self-transcending emotions is still in its infancy; and their study is not made easier by the fact that in situations which lead to pronounced stress usually both basic tendencies are aroused, so that the resulting emotion reflects a blend or oscillatory cycle between two antagonistic reaction patterns.

² Cannon himself, in criticizing a paper read by a colleague before the Association for Research in Nervous and Mental Diseases, called attention to this fact: "The author spoke of emotions in very general terms, it seemed to me. There are features which he mentioned which I could recognize as characteristic of major emotions, as anger and rage; but after all, love is an emotion. . . . I think that when we discuss emotion we ought to specify the sorts of emotion we have in mind."

It should also be remembered that the sympathetic is merely one of the two antagonistic divisions of the autonomic nervous system. While this division was shown to be connected with one type of emotion, the psychological significance of the parasympathetic remains to be accounted for—the more so as the parasympathetic reflex of lachrymation plays an important part in the "passive" type of emotion.

PLEASURE-TONE
AND THE INTERNALIZATION OF IMPULSES

In stating that "the price of progress in civilization is paid in forfeiting happiness,"³ Freud has restated a very old view, a pessimistic trend in philosophy which can be followed from Ecclesiastes to Schopenhauer and Spengler. It is based on the implicit assumption that "human nature" and its "instincts" are static and immutable, while "civilization" somehow moves, and acts as an ever tightening strait jacket on "instinct." It has already been suggested that this view of the purely conservative nature of instinct is not borne out by empirical observation, and that we regard progress in civilization as a continuation on a higher level of biological evolution, although, like the latter, it may lead into blind alleys, that is, to faulty integrations. However, there is a more specific aspect to the problem, upon which we have not yet touched. Freud's whole philosophy is based on the assumed frustration of the pleasure principle by the social environment; a concrete approach to the problem therefore leads directly to the question of the nature of the nervous processes which determine the pleasure-unpleasure tone of emotional experience.

The answer to this question can only proceed by a series of approximations. The first approximation is the Freudian view, according to which pleasure is derived from "the diminution, lowering or extinction of psychic excitation, unpleasure (*Unlust* as distinct from physical pain) from the increase of it."⁴ Ordinary experience confirms this view: we are pleased when "all goes well," that is, when a course of action is successful, providing or promising satisfaction of the need which initiated it. Pleasure thus reflects progress of successful adjustment towards equilibrium, and a corresponding diminution of the stress or striving towards it. And vice versa, unpleasure signals that the organism is "ill at ease," that is, maladjusted, in a state of increasing stress. Accordingly, the pleasure-un-

³ *Civilization and Its Discontents* (London, 1930), p. 123.

⁴ *Jenseits des Lustprinzips, Ges. Werke*, Vol. XIII.

pleasure tone should not be regarded as a specific emotion like hunger or sexual desire, which reflect specific needs, but as an accompaniment of these emotions indicating the satisfactory or unsatisfactory progress of the striving initiated by the need. If each emotion be represented by a colour, then the pleasure-unpleasure tone would correspond to the "value," that is, the degree of light or shade superimposed on that colour. Thus hunger is an unpleasant emotion which is gradually transformed into a pleasant one through the sight, carving, chewing, and swallowing of food. But while the tone of the emotion thus changes from "dark" to "light," its colour or quality remains unchanged; if the plate is taken away from us after the first bite, it will quickly revert to the dark or unpleasurable tone.

But this is merely a first approximation to the problem. For the objection arises: If increase of excitation is unpleasurable, why then do we speak of "pleasurable excitement"? The sight of a pretty girl may lead to an increase of sexual stress, and the same is true of the preliminaries of lovemaking; they should, according to the Freudian theory, be unpleasant—which they emphatically are not.

The answer to this paradox is to be found in the fact that, just as an imagined stimulus is sufficient to release an organic impulse, so imagined satisfaction may lead to a pleasurable partial consummation of the drive. When we are thirsty, the sight of the publican pouring beer into the glass is pleasurable; the fact that relief is within sight, the imagined anticipation of the pleasure, diminishes the unpleasant tension. The same applies to the preliminaries of lovemaking, the watching of a thriller-picture, the listening to a joke. In each case the anticipation of the happy ending amounts to a pleasurable consummation of some components of the impulse-drive while the excitation of other components increases; we are impatient to get over the preliminaries which at the same time we enjoy.

Although this partial consummation of the impulse drive is "imaginary," that is, not expressed in overt behaviour, it is an organic

process which is physiologically no less real than overt action. The preliminaries of drinking, or merely the thought of beer when thirsty, make us salivate and even gulp; while listening to a joke, we smile in the anticipated relief of laughter and consume an advance instalment of it; erotic reverie gives rise to glandular and other physiological processes, each of which is in itself a partial consummation of the drive, while at the same time other processes strain towards total satisfaction.

The more sublimated the emotion (or, which amounts to the same thing, the closer the harmony between the cortical and the lower centres), the more it will lend itself to such imaginative or internal consummation. Competitive activities, like a debate or intellectual game, are pleasurable because the intellectual planning involved in them makes the competitor visualize at every step the "winning move," and thus provides him with a series of anticipatory part-satisfactions, even if in the end victory is not achieved. Hence the sporting pleasure in such competitive activities, and the relative indifference towards the final outcome.

In the case of emotions in which the integrative tendency dominates, the pleasure derived from the internal consummation of impulses is even more pronounced. In the most sublime manifestation of the self-transcending tendency, that is, pure contemplation, the impulse tends, as we saw, to no outward activity, and is entirely consummated in internal behaviour. As we descend the emotional scale towards such compound emotions as love, we again find that the self-transcending components tend more towards internal consummation, the self-assertive ones towards overt action. "Longing," for instance, has a frustrated, but at the same time a pleasurable component, the latter derived from the imagined presence of the person longed for. In certain cases the imagined presence is even more gratifying than the real one. This occurs when the self-transcending tendency in love is very pronounced, craving for a total union which in reality can never be achieved.

Finally, the pleasure derived from the internal consummation of self-transcending impulses plays, as will be seen in more detail, a

fundamental role in all fields of art. In reading a novel we derive pleasure from sharing the hero's experiences, that is from the satisfaction of an impulse towards partial identification. Whether the hero's experiences, which the reader shares, are in themselves pleasurable or painful, is a secondary factor in determining the reader's emotional state (vehicle function in art); the primary, specific enjoyment of art consists *in the act of sharing itself*, that is, in the gratification of a self-transcending tendency through purely internal behaviour.

The pleasure-unpleasure tone is thus seen to be indifferent to the specific quality of the impulse, and merely expresses the satisfactory or unsatisfactory nature of its progress—regardless of whether the impulse consists of overt-*cum*-internal, or merely internal adjustments; whether it aims at killing a rival or at spiritual communion. As most emotions reflect stresses of a compound character, each impulse component of the adjustment drive will have its own pleasure tone, resulting in the well-known phenomenon of "mixed feelings." It is as meaningless to ask whether a highly complex emotion like love is pleasurable or not, as it is meaningless to ask whether a Rembrandt painting as a whole is light or dark. It is equally futile to expect that any impulse may ever lead to complete satisfaction, that is, complete elimination of organic stress. Every impulse, even if it seems to have fully attained its aim, leaves an emotional aftermath which indicates that the adjustment is not entirely complete—or, to put it differently, that each impulse is only part of a drive. After a meal one may have agreeable or other feelings, which indicates that the nutritional urge comprises not only the ingestion of food but also its digestion, which may make satisfactory or unsatisfactory progress. Properly speaking, the drive will have reached its full aim only when the food has been completely assimilated and the residue expelled, by which time a new drive will have started. Similarly, *post coitum* one feels either proverbially sad or a sense of pleasurable well-being, which indicates that the sexual drive comprises not only the physiological act but also a self-transcending component which is not extinguished in the act, and whose realization

or frustration will determine the pleasure-tone of the emotional aftermath.

CIVILIZATION AND "INSTINCT-RENUNCIATION"

If a drive is partly or entirely *blocked* (by internal or external obstacles) its tension will increase. But this will not necessarily be wholly unpleasurable, as part of the tension may be "internalized" (consummated in internal behaviour) in addition to those components which are normally satisfied in this way. Thus, the arrest of impulses may in itself become a source of pleasure, though a pleasure attached to emotions of a quality different from that of the unarrested impulse. We exploit this possibility each time when consciously or unconsciously we go slow in the consummation of a drive, prolong its duration by observance of conventional or self-imposed rites, and thus increase the internal satisfaction derived from imaginative anticipation of the next step. This process of "refinement" can, as every process, be carried to pathological extremes, when, owing to hereditary or environmental factors, the exteroactive components of the drive are so weakened that imaginary satisfaction wholly replaces the act. But pathological extremes apart, the gradual increase of the ratio of internal to external consummation of impulses—that is, of implicit to overt behaviour—is, far from being a morbid phenomenon, merely a continuation of the evolutionary process, as reflected in the development and function of the nervous system in particular. The *refinement of behaviour imposed by civilization need accordingly involve no sacrifice of pleasure, merely a further shift of pleasure towards internalization*. It only becomes a neurosis-forming factor in deformed types of civilization, as will be briefly discussed below.

It follows from what has been said, that expressions like "instinct-renunciation," "frustrated" or "arrested drives," should be employed with extreme caution. If we ask: Under precisely what conditions is an impulse *not* arrested, or not subjected to some inhibitory mechanism? the answer will be that such conditions can only be found on the level of the amoeba. On the higher evolutionary

levels we find increasingly complex response patterns, products of the constant interplay of excitations and inhibitions, from the mutual inhibition of skeletal flexors and extensors up to the permanent inhibitory control of the cerebral cortex over the lower centres. The ideal of "uninhibited behaviour" is physiologically absurd, psychologically a pernicious fallacy. If we wished to realize this ideal, we would have to model our behaviour on the epileptic fit. Release from cortical restraint leads not towards some romantic state supposedly enjoyed by the healthy pagan, but to morbid hypermotility or rigidity, to sensations of insufferable pain at the slightest stimulation, to manic excitement and flight of ideas, uncontrollable weeping and laughter, and so on. Every form of discriminative, purposeful behaviour is the result of adjustments of conflicting excitations of afferent and efferent pathways, where every impulse is in some respect "arrested" or "restrained" from its very inception. The functional hierarchy of nervous centres reflects the story of the adaptation of organic tendencies in the evolution of the race, so that in the normal person these tendencies normally express themselves in the appropriate patterns. This is not the result of a "renunciation" but of an organic integration; just as it is not a "renunciation" on the part of the embryo to shed its tail and shift its eyes from the side to the front. And the same is true of the continuation of the biological process on the level of civilization and social integration. We do not normally experience as a frustration the replacement of cry and gesture by verbal symbols, the replacement of overt trial-and-error behaviour by implicit reasoning, the use of tools to replace physical effort, though each of these changes means a shift towards internalization of impulse reactions. If intellectual competition were to regress to primitive forms of clubbing, if we "wolfed" our roast duck and gulped down the old claret, if love-making were deprived of courtship and preliminaries, we would get not more pleasure out of our instincts, but less. And yet this pleasure-providing sublimation and internalization of organic tendencies is mainly due to a hierarchy of inhibitory processes from the cortex downward.

It may be objected that the inhibitory restraint and control of

impulses imposed by the biological evolution of the nervous system is a different thing from the inhibitory restraint and control imposed by civilization, that is, social evolution. But this objection is based on a complete neglect of the functional continuity of the integrative processes on the biological and social levels. In fact, in the Freudian view the evolutionary process seems to stop with the emergence of Neanderthal man; from then onward the forces of organic progress which have been active from the spiral nebulae to the amoeba and thence to man, operate no longer, and the rest of the story is that of successive tightenings of a strait jacket on the caveman's immutable instincts. The Freudian view thus implies a break between the biological and the social series. In the view here presented the two are continuous, and biological and social evolution are manifestations on successive levels of the basic integrative tendency.

As Freud recognizes no general integrative tendency in man, and as the only concrete expression of his Eros is the sexual drive, all cultural achievements appear as ersatz formations for goal-inhibited sexuality, and the correct term for the Freudian meaning of "sublimation" would be "substitution." In the last resort, all arts, crafts, discoveries, and constructive achievements appear then as coitus substitutes. It is curious that in the long and stormy controversy about the Freudian metapsychology, no serious attempt has yet been made to produce historical evidence for the coincidence or otherwise of peak periods in the history of art with sex-inhibiting social conditions. The two most obvious of these peak periods, Greece and the Renaissance, would hardly substantiate the Freudian contentions. If, however, we recognize that in the whole realm of living matter the dominant "natural" trend in the strictest sense of the word is the evolution towards and the emergence of more complex, discriminatory, coordinated response patterns, in other words, the general tendency towards higher integration, then the sexual drive and artistic creation, neighbourly love and social activity, religious experience and the pursuit of science, all appear as branches of the same tree. According to circumstances, one branch may develop in

relative "isolation" or autonomy at the expense of the others⁵ in a given individual or civilization, but that is a very different thing from saying that art is a substitute for goal-inhibited sexual desire. Mysticism is primarily a manifestation of the integrative tendency; and though one-sided development of the contemplative faculty may impose some degree of abstinence, it can no more be explained as mere "goal-inhibited sexuality" than Don Juan, the eternal searcher, is merely a frustrated mystic.

THE BIAS IN FREUD'S METAPSYCHOLOGY

Admittedly, in practical psychotherapy such distinctions between metapsychological conceptions often make little difference. It is often equally unimportant whether the patient is treated by a Freudian, Adlerian, or Jungian analyst, or a Catholic father-confessor. But in respect of cultural influences, the difference is great. The Freudian system has come to be regarded not merely as a therapeutic method but as a general philosophy of life; and, as such, its influence is almost as negative as the influence of its discoveries was positive and fruitful for science. Moreover, in cases of general maladjustment (as distinct from specific, sharply defined disorders) the philosophical bias may even vitiate the cure. In a world where instinct is by definition regressive and where no integrative forces exist, the therapist has no operative fulcrum to elicit integrative responses from the patient. All he can do is to try to persuade him to renounce his "natural right" to rape and murder, and to accept the strait jacket of reality for purely utilitarian reasons.

Of the three Freudian adaptational mechanisms, the Pleasure Principle expresses the short-cut tendency towards the elimination of all tension, and inorganic equilibrium; the second, the Reality Principle, aims in the same direction through a longer enforced detour; hence this secondary adaptation is merely frustrative, inhibitory, because there are no integrative tendencies in the individual to which it could appeal. The third mechanism, Repetition Compul-

⁵ Cf. Chap. X.

sion, is an even more direct expression of the regressive tendency of instinct, of Nature's wish to die.

Consequently, in the whole Freudian terminology, expressions like "synthesis," "integration," even "evolution" are strikingly absent. The ego's relations to other persons can only be either destructive or sexual; these two alone are accorded the name of mature "object-relations"; comradeship, sympathy, tenderness, devotion to an idea are all based on identifications which are regarded as regressions towards the infantile stage. Denial of an inherent, organic integrative tendency leaves no place for any positive values in the field of ethics or social behaviour.

It has been variously suggested that the pessimistic, antihumanistic bias in the philosophical superstructure of the Freudian system may have been largely determined by Freud's life-long work on neurotic patients with infantile fixations and regressive tendencies, against the background of the decaying civilization of the Austro-Hungarian Empire. It should be repeated that criticism of this superstructure does not affect the immense significance of Freud's pioneer achievement, which, seen in proper historical perspective, freed from its dross and from the scholastic verve of its disciples, will rank in importance with the Copernican or Darwinian bombshells.

Freud unlocked a gateway on humanity's path of progress; then, having thrown it open, he grew tired and chalked over the lintel: "All hope abandon, ye who enter here." The inscription will be effaced in time, but the gate will remain open.

EAST AND WEST

The difference between what we called the normal adaptational processes in social evolution—sublimation, internalization, and so forth—and the pathological neurosis-forming effects of certain types of civilization is, of course, a matter of degree. Freud assumed that civilization *as such* must inevitably lead to cumulative frustration and neurosis. In our view only faulty integrations of social wholes, that is, "deformed" civilizations, produce such effects. The Freudian view is based on the hypothesis that civilization enforces

the gradual abdication of both the "destructive" and the sexual instincts, both of which are conservative and regressive and which, each in a different way, avenge themselves by producing pathological phenomena. Our objection to this view was threefold: (a) denial of the instinctive character of destructive behaviour, which we regard as a form of self-assertion under extreme stress (compare Chapter X and pp. 222-224 below); (b) assertion of the genetic primacy of the integrative tendency, of which the sexual drive is regarded as a branch; (c) denial of the purely conservative character of "instinct" and the assertion that the processes of the sublimation and internalization of impulses are continuous with biological evolution. If these objections are valid—and we believe that there is overwhelming biological evidence for this view, whereas the Freudian propositions are admittedly speculative and tentative—then there is no reason why social evolution as such should be hostile to the unfolding of either the integrative or the self-assertive tendencies.

Having rejected the view that social evolution in itself is a pathogenic factor, we conclude that specific disturbances arising in a given period and culture are the result of specific faulty integrations of the social whole. As neuroses in the individual may be described in terms of adaptations to abnormal conditions in his early environment, so we may regard the faulty integrations of a given civilization as a result of specific stresses in the developmental conditions of that society as a functional whole. Now the faultiness of the individual's integrative pattern can, of course, be measured only against the average norm; and it may be argued that no equivalent standard measure is available to define the normality of a civilization. But though we are unable to point to any model of an ideally "normal" civilization, we are nevertheless able to point out striking deviations from the average norm of social evolution, however vaguely defined the latter may be. When we find that at the height of Greek civilization male homosexuality was almost *de rigueur*; that today in certain states of the United States of America the number of people confined in mental asylums exceeds that of the patients

admitted to all other types of hospital; that in England in bygone days sadism was the most frequent sexual disorder, while today it is impotence and frigidity; if we compare the monstrous rites of Maya civilizations with the relatively peaceful social life of some South Sea archipelagos—we must conclude that no exact definition of the norm is required for the diagnosis of the abnormal or excessive.

Incidentally, among the highly developed insect societies—the beehive or termitary—we nowhere find any appreciable occurrence of criminality or asocial or neurotic behavior, although animals are liable to neurotic behaviour under paranormal conditions. Experimental neurosis is easily produced in the laboratory, and even infantile fixations may occur, as in the case of pet dogs or bottle-fed lambs. Similarly, drastic interventions into the social life of the beehive will produce all the symptoms of social disintegration and decay. Furthermore, there also exist many examples of relatively well-balanced and peaceful human civilizations, past and present. In short, the amount and type of discontent in a given civilization is determined by specific conditions, and is not an inherent consequence of social evolution as such. The dinosaur was not the last word of biological evolution, nor did social evolution end with the Austrian Empire of Freud's day.

The effect on the individual of such faulty integrations of the social whole may be regarded as a secondary frustration superimposed on the first, his early family history—though the two are of course inter-related as the family itself is a sub-whole of society. The first factor is responsible for the deviations of the individual from the standards of the civilization into which he is born; the second, for his deviations from the general mean of human social evolution.

Our concern here is with the second factor; more precisely, with the thwarting effect of faulty integrations of social wholes, reflected in the individual's social behaviour patterns and his mental structure, on the natural unfolding and sublimation of his organic tendencies.

One of the most relevant comparisons from our point of view is that of the relative facilitation of the development of the integra-

tive and self-assertive tendencies in ancient Eastern and contemporary Western civilizations. Had China or India produced a science of analytical psychology, the self-transcending emotions would head their list, as the trinity hunger-rage-fear stands out in Western psychology. The Oriental psychologist would probably even deny the latter the title of "major" or "true" emotions and dismiss them as illusions, garish colours in the veil of Maya, just as the Western psychologists suspect the self-transcending emotions as partaking of hysteria and morbidity. The beginning and end of Eastern philosophy is the striving towards cosmic integration through the annihilation of the self and its absorption into the Atman, the All-One. The long centuries of stability, the continuity of tradition, the self-sufficiency of the great Eastern empires based on quietist philosophies—Taoism, Brahmanism, Buddhism—would not have been possible if the self-transcending emotions were not basic in human nature. Contemplation, nonattachment, passivity, contempt of the body and its needs, the three silences, the cycles of rebirth and metempsychosis were realities as elementary in the lives of millions during millennia, as competition, domination, individualism, self-asserting activities are for us. Even their only approved activity, the acquisition of merit, aimed at the liberation of the self from the bondage of rebirth and thus stood directly in the service of self-transcendence. For Western man, on the other hand, all "good works" still serve the self-assertive purpose of *individual* rewards in afterlife; and even his prayers are primarily petitionary rather than contemplative.

To sneer at these Eastern aspirations means to negate the tendencies and values of the greater part of the human species throughout the greater part of its recorded history. To admire them blindly and recommend their unconditional imitation as a cure of all Western diseases means a failure to recognize the price which the Orient paid for its excessive indulgence in the oceanic feeling and its corresponding neglect of the self-asserting tendencies. The result of this development was that the integrative tendencies could only express themselves on the cosmic, not on the social level. The thwarting of competitive striving, the denial of attention to the bodily self, the

extinction of the will to power produced the familiar phenomena of Oriental squalor and disease, of intellectual stagnation and social resignation by acceptance of caste. Epidemics, starvation, and puerperal sepsis, absolute rule and fatalistic submission, are some of the results of the thwarting of the self-assertive drives, just as many of the evils of Western civilization result from the reverse process.

XVI

The Regenerative Equilibrium of Civilizations

THE symptoms of our Western crisis may thus be summarized as the effects of hypertrophy of the self-asserting drives with a corresponding decline of the self-transcending impulses.

The causes, as we said before, may be traced to the fact that Western man during the last three centuries has lived in an unstable environment which was changing through his own activities at a biologically unprecedented rate. This is true both of his relations with nature, constantly modified by applied science, and with other men, constantly modified by social changes. This unstable equilibrium of the social whole produced excitations and stresses in the individual part such as no other species and no other civilization has experienced before. Books, magazines, films serve as accumulators of constant sexual overstimulation; industrial and finance capital represent an unheard-of concentration of stimuli for the competitive and acquisitive drives; modern weapons, radio and press amplify our aggressive and dominative impulses. If a Frankenstein wanted to transform a sixteenth century artisan into a twentieth century business executive by purely biochemical means, then, taking only the three factors mentioned into account, he would have to feed him on aphrodisiacs, pump him with adrenalin, and amplify his voice and muscular strength at a ratio of about a thousand to one. Although the symptoms have been described *ad nauseam* in works of lamentation and exhortation, the biosociological significance of these upheavals is rarely appreciated to their full extent, and the remedies proposed are accordingly Utopian and ineffectual.

If our conclusions are correct, then the symptoms which characterize the Western crisis, such as ruthless competition, war, and political fanaticism, are the natural responses of the self-assertive tendency in man to hyperstimulation and abnormal stresses in his environment—and not, as Freud suggested, the release of an inherent destructive tendency or death-wish.

DENIAL OF A DESTRUCTIVE INSTINCT

As we saw earlier (Chapter X), Freud's Death Instinct is as ambiguous as his Eros. On the one hand it "works silently within the organism towards its disintegration" by means of catabolic chemical processes (the breaking down of organic into inorganic compounds), and follows a general tendency towards inorganic equilibrium. In fact this aspect of the Death Instinct may be equated with the second law of thermodynamics—the gradual diffusion of the energy of complex "improbable" systems into the surrounding medium until a state of homogeneous distribution of energy and matter, free from all tension, that is, of universal death, is reached. But, on the other hand, this same quietistic tendency towards the inorganic state appears, when projected outwards, as active destructive sadism. How these two aspects can be harmonized and put into a causal relation is difficult to see. For the Death Instinct in the first meaning of the term is a physicochemical tendency of cells and molecules towards quiescence; in the second meaning it is a coordinated violent aggression of the whole organism against other organisms. The mechanism by which the silent sliding towards senescence and natural death becomes converted into the causing of the violent death of others is not explained by Freud, the only link is the ambiguous use of the word "death-wish."¹

Not only is the connection between these two aspects of the Death

¹ This process should not be confused with the Freudian mechanism of aggression against others being deflected upon the self (sadism turning into *secondary* masochism). Here both impulses are on the same level, as it were, merely pointing in different directions, and no objection arises. Our objection refers merely to the unexplained conversion of the so-called *primary* masochism—in fact, chemical catabolism or senescence—into destructive aggression.

Instinct a purely verbal one, but each aspect in itself is highly questionable. In Chapter X we quoted the evidence for senescence being biologically a relatively new phenomenon like sexual reproduction; we saw that both are too specific and restricted in their range to serve as "first principles" of a natural philosophy. The most characteristic fact about organic evolution is precisely that it seems to ignore the second law of thermodynamics. The living protoplasm, instead of diffusing its energy into the surrounding medium, sucks energy out of it; in physical terms, it "feeds on negative entropy." This is the reason for the potential immortality of the lower organisms; natural death only arises on a relatively high level of complexity. However, at present we are only concerned with the second aspect of the Death Instinct, the instinct of destruction, for which no trace of biological evidence can be found. Nowhere do we find in plant or animal behaviour destruction for destruction's sake. Ivy may strangle a tree in its climb towards the light, but it will grow just as well upon a wall, and the destruction of the tree is accidental. Animals kill to devour, in competition for food or mating partners, but their aggressive-defensive behaviour can always be shown to be causally related to the self-assertive tendency, and the assumption of an instinct of cruelty or destruction per se is entirely gratuitous. As for man, it is precisely the Freudian technique which taught us to seek out in apparently wanton, unprovoked acts of destructiveness—for instance, a child torturing an animal—the hidden motive, which usually turns out to be frustrated love, jealousy, or some repressed tendency towards self-assertion. To prove the existence of a primary "destructive instinct," it would have to be shown that destructiveness will make its appearance regardless of specific environmental stimuli, as is the case with sex or hunger. But clinical evidence shows that wherever destructive behaviour makes its appearance, it is a pressure product of paranormal conditions. To quote Horney:

Freud's assumption implies that the ultimate motivation for hostility or destructiveness lies in the impulse to destroy. Thus he turns into its

opposite our belief that we destroy in order to live: we live in order to destroy. We should not shrink from recognizing error, even in an age-old conviction, if new insight teaches us to see it differently, but this is not the case here. If we want to injure or to kill, we do so because we are or feel endangered, humiliated, abused; because we are or feel rejected or treated unjustly; because we are or feel interfered with in wishes which are of vital importance to us.²

In short, cruelty and destructiveness are to be regarded as extreme forms of aggressive-defensive behaviour under paranormal excitation, derived from the self-assertive tendencies.

INSTABILITY AND REGENERATIVE EQUILIBRIUM OF SOCIAL WHOLEs

Social evolution should not be regarded as a linear process, with discontent through instinct renunciation increasing in direct ratio to its progress. Its study should be approached like that of functional wholes of a very low order in a rapidly changing environment. Societies break up like the cells of the crushed sponge and grow together again; they are cut into pieces like the segments of the flat-worm and regenerate into new independent wholes. Catastrophic conditions may produce spectacular regressions to the primitive herd or to rigid monoaxiate tyrannies like the totalitarian mass movements of the twentieth century. On the other hand we find slow continuous integrative development in institutions and "dominant ideas," like the evolution of Judaeo-Christian ethics into the contemporary forms of humanistic ideologies.

To avoid specious extrapolations and prophecies, one has constantly to bear in mind that the social wholes whose emergence, interaction, and dissolution history has witnessed so far, are unstable organisms on a very low level of integration which have had as yet no time to adapt themselves to the continuous and rapid changes of environment. Stable, balanced integrations are only possible under relatively stable environmental conditions, and these are unlikely to occur for a considerable time. Before the Western world had time

² Horney, *New Ways in Psychoanalysis* (London, 1939).

to adapt its social structure to the invention of the mechanical loom, the steam engine was invented; when it had only begun to digest the consequences of this, other profound environmental upheavals, culminating in the release of nuclear energy, made all previous adjustments illusory.

Stability of civilization can only be found in periods which favour a slow tempo, as the almost unchanging forms through three thousand years of Egyptian art and craft demonstrate. Most of the relatively continuous civilizations display the phenomenon of regenerative equilibrium, that is, of secular adaptation through temporary regression, with succeeding rearrangements of the pattern of the whole. The so-called "Dark Ages" were followed by the Renaissance; periods of apparent somnolence, of regression to the rejuvenative sources of the dream, are succeeded by the rebound of wide-awake Promethean centuries. Once again it is the process of *reculer pour mieux sauter*, of correcting faulty integrations through temporary regression, which we found operative in biological evolution and in the creative processes of the individual.

Though the regressive process may be only temporary, as long as it lasts its effects are shattering. The neurotic's resistance to cure is based on the fact that, however precarious and artificial the balance established by his faulty integration, it provides him nevertheless with a *modus vivendi*; whereas its undoing is experienced as a collapse, a destruction of the whole structure of his personality. The promised reintegration is a matter of the abstract future; the present experience is the anguish of disintegration, the collapse of security—even if the structure which provided it was merely a house of cards. The period of regression, however temporary, however regenerative its outcome, is a period of interregnum, a descent into hell, a time of anguish and gnashing of teeth. The only consolation of the patient, who is thrown like Joseph into the well, is his confidence that the therapist will pull him out.³

³ Without going into detail, it should be mentioned in passing that the anxiety-guilt mechanism which plays such a decisive and yet obscure part in the Freudian theory, is regarded here as the *experience or anticipation of dis-*

Civilization lacks this comfort of guidance by a superior power. Its periods of regression and chaos are the more distressing to those entrapped in them, as there can be no certainty that the setback is only temporary, that it is only an interregnum and not the end of that particular culture. Extrapolations are impossible, as without distance one can never know whether one is merely caught in the backwash of a wave, or in the great sweep of the receding tide.

That the present crisis of Western civilization is a profound one, we cannot doubt, nor that it will be followed by others until two conditions are fulfilled: the final integration of national states into a global whole; and the adaptation of social organization to changes in the natural environment, that is, to the level reached in the technique of the exploitation of natural resources. Obviously the second condition can only be fulfilled when technical progress is slowed down sufficiently for social organization to catch up with it.

It seems at present unlikely that Western European civilization has a sufficient regenerative span to survive until it attains this aim. But all extrapolations are hazardous; and prophetic guesswork should never be allowed to obscure the necessity of coping with the current emergency, even if all practicable remedies are thought inadequate, and seem to offer little chance of recovery.

INADEQUACY OF NEGATIVE REMEDIES

As already mentioned, the aim of this book is not to suggest social remedies, and the following remarks are offered merely as tentative contributions to a diagnosis.

integration in the organic or mental sense, i.e. of a breakdown of physiological or psychic structure. Its archetype is the *Urangst* of primitive man surrounded by overwhelming and incomprehensible powers. Horney's "basic anxiety" of the neurotic character is interpreted here as the apprehension of a danger menacing the *modus vivendi* of its faulty integration, which the neurotic knows to be precarious and vulnerable. As for the relation between repressed aggression and specific anxiety-guilt syndromes, we accept Horney's interpretation: the neurotic, dimly aware of the fragility of his mental structure, fears that the surrounding powers will retaliate to aggressive impulses through the unpredictable, incomprehensible means at their disposal.

We suggested that the main disturbance in contemporary Western civilization is a hypertrophy of the self-assertive drives due to an excessive concentration of stimulants in the social medium, with a corresponding weakening of the integrative bonds. Clearly the remedy cannot be *negative*; it cannot consist in a biologically impossible renunciation of the response to this hyperstimulation, nor in a renunciation of the technical organs for amplifying man's power, from the telephone to nuclear fission. No species and no civilization has ever voluntarily sacrificed its means of self-assertion. We must squarely face the fact that ruthless competitiveness, political fanaticism, and even war are natural responses to these abnormal stresses. To preach the voluntary renunciation of the response means to preach against organic law. The only way in which negative measures aiming at a diminution of aggressive-defensive behaviour can be effective is by eliminating excessive *stimulation*—in other words, by attempting to create fairly stable environmental conditions through social and political reform. But such measures alone, though necessary and important, are insufficient without a positive cure: the strengthening of the integrative tendencies in the social whole, the recapture of the oceanic feeling which civilized man has lost. All social reform ultimately aims at "change from without," at stabilizing and minimizing the stimuli which provoke aggressive-defensive, asocial behaviour—from the equalization of the steep gradients between rich and poor, between have and have-not nations, to the lowering of sexual tension by various measures. But a direct influencing of the individual's *responses*, a "change from within" cannot be achieved by any amount of institutional changes in the environment. The ultimate source of all social integration is in the self-transcending tendencies. Restraint imposed merely from without, even in the name of the most enlightened social program, always acts as a strait jacket. Only the simultaneous unfolding of the self-transcending emotions from within can achieve the individual's social integration without thwarting his natural appetites, make purity possible without puritanism, provide a natural hierarchy of ethical values—an internal code of behaviour in which the

satisfaction derived from the self-transcending impulses makes the pleasure principle morality's guide. Such "cosmic hedonism," embracing both basic tendencies and not only one, is the natural aim of human striving.

By what practical means is it possible to facilitate and encourage the unfolding of the self-transcending impulses? An increasing number of scientists, authors, and philosophers, seized by panic, advocate a return to doctrinaire religion, to the worship of an anthropomorphic God. The fact that millions in our day still find comfort in petrified doctrine proves the human craving for self-transcendence at any price, even at the price of its regression to and fixation at an infantile level.

Pure mysticism is equally unfit to provide a solution. The quietist mystic and his antipode, the political fanatic, sin in opposite directions: the second through denial of the oceanic feeling, the first through not harnessing it to social integration. Of the two extremes, the mystic is obviously the less dangerous: he only deflects a small amount of integrative energy from the social pool, whereas his opposite number directs a vast amount of self-transcending enthusiasm to the destructive purposes of the social whole.

THREE COMMON FALLACIES:

RATIONALISM, OPTIMISM AND UTILITARIAN ETHICS

But having avoided these pitfalls, we are confronted with a more serious difficulty. The self-transcending impulses by their very nature will not respond to a rational, only to an emotional appeal, which can no more be constructed on theoretical schemata than lyric poetry on a study of metric form. Emotive mass movements of this kind often arise with apparent spontaneity in periods of temporary regression and chaos, precisely because, as long as the social organism retains its vitality, the integrative tendency finds its own outlet. If the present interregnum is to be followed by a new regenerative process, this can only happen as a consequence of a movement with a moral appeal as powerful as those of the great religious movements of the past. But it cannot be concocted in the laboratory of the social

theorist. The most that he can do is to point out some of the fallacies to be avoided.

The first is the *rationalist fallacy*. Social integration cannot be achieved by a merely rational appeal to enlightened self-interest. International socialism was the only movement in the last hundred years which seemed to correspond to the integrative needs of our civilization; it aimed at the planned economic coordination of the social whole, and the replacement of the incentives of competition by the collective ideal. But the socialist movement had its roots in the Age of Enlightenment, in an optimistic belief in the infallibility of reasoning; its founders thought any appeal to the irrational emotions superfluous and undignified. It could provide no mystical compensation for man's feelings of cosmic inadequacy and craving for the Absolute; it could not fill in the emotional vacuum created by the decline of Christianity. Whenever it clashed with movements and trends of a direct emotional appeal, however absurd their rational content, the latter carried the day. In 1914 several million members of the Second International fought each other lustily in what they considered an imperialistic war; two decades later socialist Germany collapsed before the Wagnerian myth. Where socialist movements came into power—in Weimar Germany, the U.S.S.R., or Britain—they failed to create that new type of human community in a new social climate at which they had aimed. The dominant factor in the history of Soviet Russia is the breakdown of the new incentives which were to replace capitalistic competition. The arid materialism of her doctrine could produce no integrative appeal of a new type, and the only means of preventing disintegration was to fall back on coercion and the old opiates of chauvinism and leadership.

The second fallacy may be called the *optimistic fallacy*—the belief that humanity as a whole is progressing towards intellectual maturity on a slowly but steadily rising curve, much like the maturing individual. The analogy is false; for the individual develops under the relatively stable environmental conditions of his short life span, while each new technical invention revolutionizes the environ-

ment of the social whole and introduces new complications into its economic, political, and social structure, which society has no time to assimilate intellectually before the next change occurs. Accordingly, each change means a relative setback in the intellectual maturity of the masses, and the cumulative effect of these setbacks by far exceeds the slow progress of educational reform. The succession of rapid changes during the last three centuries has caused the curve of intellectual maturity to show a downward zigzag: the average modern man knows not more, but less, about the functioning of the economic and administrative machinery, the laws and political entanglements in his own society, than mediaeval man knew about his. In consequence, he is frequently unable to decide in which direction his own interests lie. Thus, the optimistic fallacy leads to the belief in democracy as an absolute panacea, while, in fact, it may become a means of self-destruction (as when the German nation in its last free elections voted National Socialism into power). Needless to say, recognition of the problematic nature of democracy in its present form implies no advocacy of its opposite. Demolition of fallacies is the necessary starting point of constructive effort. The essential point is again that institutional reform alone, for example, the most perfect electoral system, is of little use in a society which thwarts the integrative tendencies.

The third fallacy is that of *utilitarian ethics*, already referred to. Its essence may be illustrated by a very trivial example. The shortage of fuel in England during the last war made it necessary to impose restrictions on the use of hot water; it was accordingly decreed that bathtubs should be filled to a maximum level of five inches. The temptation on a cold winter morning, particularly after a night spent at an air-raid post, to add two more inches was strong. According to the utilitarian theory of ethics, the only reason to resist it was enlightened self-interest: if everybody did the same, one would have no hot water at all. But behind the locked door of one's bathroom the contravention would remain undetected; the quantity of water used was so negligible that in itself it could not harm the community; it could only do so if others were encouraged

by the bad example to act in the same way; but as nobody would know, there was no question of giving a bad example. In other words, this asocial act could do no conceivable harm either to society or to oneself, and utilitarian ethics yielded no convincing argument against committing it. And yet the welfare of society depended on self-imposed observation of the law by millions of individuals in the privacy of their bathrooms, without reference to each other, independently of all utilitarian considerations, without hope that the self-imposed sacrifice could influence the conduct of others and thus have any practical effect.

Social conduct in general consists in a series of similarly trivial decisions at practically every step; and if these were guided by a purely utilitarian ethics, society would rapidly disintegrate. In fact, conduct is determined by a variety of other factors: religion, convention, childhood conditioning. None of these, however, can stand the test of rational scrutiny, and, if analysed, each will reveal a split between reason and belief. A completely rational conduct in conformity with the present scientific outlook in general, and the Freudian system in particular, must inevitably lead to nihilism. The place for a system of ethics in harmony with our state of knowledge is vacant.

This vacancy dates back to the revolution of thought which occurred roughly round A.D. 1600, although its implications came only gradually to be realized, and are not fully realized even now. It may be described as a shift from "guidance from above" to "guidance from below." In prescientific times the world was explained, and man's actions were guided from "above," through the agency of anthropomorphic deities. The gods were upward projections of the human image, extrapolations of humanity on an ascending scale. But the spectacular success of the new methods of natural science brought a decisive change, for molecules and atoms were extrapolations on a downward scale. Destiny from "above" had been both an explanation of the world and a guide to conduct; destiny from "below," determined by electrons and quanta, was an explanation but no longer a guide. Thus the place of ethics became

vacant. This vacancy is reflected, *inter alia*, in the change of meaning of the word "law." Divine Law meant both a principle of explanation and an ethical imperative; Natural Law means only the first—it explains but is ethically neutral.

Before the change, man's relation to his destiny, that is, to the deity who determined his fate, was primarily one of humility, of emotive self-transcendence. After the shift to "determinism from below," it became one of domination—after all, if atoms determined man's fate, he could manipulate atoms in the laboratory. Before the change, enlightenment about the why and wherefore of existence could only be obtained by passive contemplation; now it seemed that active research would yield better results—knowledge became externalized and divorced from the oceanic feeling.

The absence of ethical values backed up by reason, of a code of behaviour derived from the same laws which served as the source of explanation, made itself felt only gradually. The void was screened by anachronistic cults, on which the self-transcending emotions fastened *faute de mieux*, by the sophistries of utilitarian ethics and other rationalistic makeshifts. But as these are collapsing one by one, and the religious palliatives, despite their great tenacity, are wearing thin, the suction of the void manifests itself in increasingly menacing form. As the self-transcending tendencies find no aim on which to fasten, people are ready to embrace any catastrophic faith, the more totalitarian the better, for it is total surrender of the ego which they crave; and they will cling to it with marvellous tenacity, with the neurotic's resistance to the cure—for a faulty integration is better than none, and the alternative is the void.

TOWARDS A NATURAL ETHICS

In recent years, however, developments in natural science seem to indicate a new turning point, comparable in importance to that of A.D. 1600. Again, the implications are slow to seep through, though not quite as slow as the first time. The new emphasis on "wholeness" in all branches of science, from physics to psychology, marks the end of the mechanistic philosophy of "destiny from

below"; and once the new change has taken full effect, it will bring to an end the ethical neutrality of science, the division between knowledge and faith. The change may be characterized as the growing realization that the explanations of ultimate reality which science has to offer are mere anthropomorphic projections, just as the explanations of religion were. The primitive created gods and idols in his own image; the scientist made models of atoms, germ cells, brain processes by projecting his narrow spatio-temporal experience of the phenomenal world, of substance, energy, and causation, into spheres where they do not apply. But gradually, since the end of the last century, the models have collapsed as the idols once did. The commandment "Thou shalt not make unto thyself any graven image," was found, by a curious irony, to apply equally to the curved space of a finite, expanding universe, to electron waves, and quanta. As once the gods had become gradually depersonalized, so the concept of science now became gradually dematerialized.⁴

The only tangible certainty which remains in this vanishing act of everything tangible, is Galileo's *E pur si muove*, applied to the evolutionary process from simple to complex forms of life, from the amoeba to Neanderthal, from Neanderthal to Athens and Florence. The why and how of the process, instead of becoming more simple, becomes increasingly puzzling as the physicist's models, the biologist's "mechanisms" dissolve in our hands; and the only ultimate certainty which remains is that differentiation and integration do occur and are reflected in the direct experience of our wholeness and partness, of our impulses both to persist in the individual ego and to transcend its limiting boundaries. Once this second tendency, towards self-transcendence and integration, is recognized as being as real as its opponent, and recognized as the ultimate and irreducible driving power of the evolutionary flux, the ethical neutrality of science will automatically come to an end, the split between

⁴ Some scientists and theologians drew from this convergence the rash conclusion that it was time to meet in some halfway house. But Kepler's God-mathematician is as meaningless a verbalism as Jeans's little inter-quantar gods whirling through the continuum.

reason and belief will heal and Natural Law resume its original meaning as both a guide to understanding and a guide to conduct. It may be too late then to halt the present regressive trend; but human evolution does not count in decades, and is not tied to one particular civilization which happens to be our own.

BIOLOGICAL HANDICAPS TO SELF-TRANSCENDENCE AND THE FUNCTION OF ART

If we can believe the historians, ancient Greece represented the most balanced form of civilization hitherto known. Yet even in Greece the word *pathos* denoted both the self-transcending type of emotion, and suffering; the two were synonymous, and to this day "pathos" is used in this double sense.

Though our views are opposed to Freud's pessimistic estimation of social evolution, the possibility has to be admitted that the biological equipment of *Homo sapiens* may not be particularly favourable to the unfolding and full realization of the integrative tendencies, and that a certain amount of frustration of the self-transcending emotions is inherent in the human condition. It seems probable that even the most perfectly organized society of carnivorous mammals, blessed or cursed with a permanent mating season is, from the point of view of social integration, at a disadvantage compared to, say, the social insects. The slow maturation of the human young, and its consequent long period of helplessness and dependence, together with the all-year continuity of the sexual drive, facilitate the breaking up of the social unit into separate families which act as isolators and condensers of the integrative tendencies. The Oedipus conflict may be regarded as a direct consequence of these biological factors and expresses in the most striking form the pathos of the human condition. Whether it be described as the severance of predominantly "sexual" ties or, with Suttie, as a "taboo on tenderness" is, in the light of the preceding chapters, a question for the semanticist. The essential point is that, through its long period of helplessness and dependence, its protracted stay in the hot-house atmosphere of the nest, the human child's integrative drives become fastened on the

mother to a biologically unique extent. Hence the widespread fixation of the integrative tendency on an infantile level, with its socially devastating consequences. The institutional forms of the family vary according to period and culture, but whether we turn to the stuffed and padded Victorian nest, or the hierarchic rigidity of parent-worship in China, its thwarting influence on emotional development is one of the main obstacles to the free unfolding of the integrative tendencies in society, which social evolution will have to overcome sooner or later.

The Oedipus situation in its dependence on biological factors may serve as an example of the handicaps inherent in the human equipment. Even where no noticeable deformations result, its after-effects accompany the individual through his formative years, permeate the mythology and art of the race. It remains the prototype of all successive frustrations of the self-transcending emotions, from the ever present residue of two-ness where one-ness is desired, to the never complete dissolution of the ego in the oceanic feeling. Beyond and underneath all sociological factors, it seems that man is constitutionally incapable of achieving complete integration and self-transcendence, for the simple reason that consciousness of the self has to be paid for by the experience of its isolation.

At the dawn of civilization, Manu, the first man in Sanskrit mythology, sums up his future prospects :

“Single is each man born into the world; single he dies; and his body lies like a fallen tree upon the earth.”

Among the various methods of overcoming his isolation and realizing his self-transcending drives, artistic creation and inquiry into the nature of the world are the most significantly human. Though at present accessible only to a minority, it is to be expected that on a higher level of civilization they will become the main expressions of man's integrative tendency. Both are continuous with primitive magic, which helped earlier men to transcend the limitations of the self, and employ the same methods of projection and

introjection, of imitation and participation, in sublimated and internalized forms. In the preceding section we have explored some of the emotive driving forces behind the pursuit of art and discovery; we now turn to the cognitive processes through which they are realized.

PART THREE

THE NEUTRAL ARTS: INVENTION AND DISCOVERY

The most fortunate moments in the history of knowledge occur when facts which have been as yet no more than special data are suddenly referred to other apparently distant facts, and thus appear in a new light.

—Köhler, *Dynamics in Psychology*

XVII

The Exploratory Drive

IN Part One we examined the intellectual ground plan or geometry of the creative mental processes; in Part Two we examined the quality of emotions. We shall now apply our findings in Part Two to those of Part One.¹

We said that associative habit behaviour and habit-thinking characterize the dim routine of existence, while the creative mental functions (and their re-creative echo) in comic and serious art, invention and discovery, have a bisociative pattern. Associative behaviour and thought are dim because they are repetitive, move along beaten tracks, and need no sharp focusing of attention. Bisociative processes have the brilliance of discovery, the sparkle of humour, the radiance of art because they show a familiar thing or event in a new, unexpected light, bestow upon it an added dimension of understanding, hold it in the focus of the beam of consciousness.

CONVERSION OF TRAGIC INTO COMIC— AND VICE VERSA

Comic art, we said, results from a bisociative geometry with an emotional charge in which the self-assertive tendency dominates; tragic art, we are accordingly led to believe, should result from a bisociative geometry with an emotional charge in which the self-transcending tendency dominates. In the first case the dominant emotions are derision, a feeling of superiority and nonidentification,

¹ After the long detour of the preceding sections, it may be helpful to reread at this point the summary at the end of Part One (p. 110).

the aggressive and physical aspects of sexuality. In the second case they are sympathy, projection, identification, the self-transcending aspects of sexual love.

A situation or narrative will change from tragic into comic, from pathos to bathos, according to the percipient's emotional attitude. This attitude depends on various factors: his individual psychic make-up, his conditioning by the age in which he lives, the mood of the moment. The adolescent responds to a Rubens nude with a smirk, the adult with admiration. Paintings which in a period of sentimental taste appeared as romantic works of art affect the spectator in a more sophisticated, emotionally economic age as cheap trash. The hunchback, the asthmatic, the man who slips on a banana skin, the obese are comic or tragic figures according to general upbringing and the mood of the moment. In all these cases the stimulus itself remains unchanged, and the different quality of the emotional charge depends entirely on the percipient.

Yet other attitudes can be produced altering the stimulus itself in such a way that its cognitive aspect or ground plan remains unchanged while its emotion-evoking aspects are altered. Any tragic poem can be turned into parody by being read aloud in a manner which changes the listener's mood from rapt attention to derision, without altering a word of the text. It is also possible to alter the text by using words which convey the same factual information but possess a different emotion-evoking power—a distinction corresponding to Ogden's "two uses of language": the referential (cognitive, information-conveying), and the emotive.² Every story of Boccaccio's can be transformed into a little tragedy without altering its factual content; any narrative can be made to appear tragic or comic without adding to or taking away from the factual content. Finally, we may alter the actual content of a narrative without altering its essential pattern, by employing the same operative fields, but choosing different junctional events as bisociative links. The cognitive pattern of *Oedipus Rex* is the intersection of the operative fields

² Ogden and Richards, *The Meaning of Meaning* (London, 1923).

of Destiny and Human Striving in apparent chance coincidences. The same bisociative pattern, with a different emotional charge, underlies all comedies of error based on mistaken identity. Hence Oedipus Rex can be made to appear as a prize fool who kills his father and marries his mother, all by mistake; the tragedy is turned into a French farce without altering its cognitive lay-out.

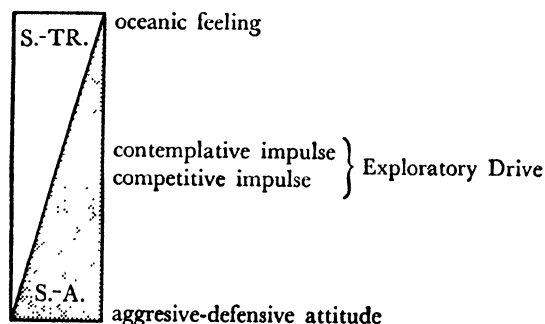
The intersection of any two operative fields can thus be made to serve both tragic and comic effects. The bisociation of the fields of physiological and social behaviour can be turned to tragic use in the theme of the weakness of the flesh, or to comic use in stories of the sergeant major attacked by diarrhoea. Even the most despised branch of the comic, the pun, derives its effects from the same source as the poetic rhyme does: the bisociation of meaning with affinity of sound. We conclude that the same bisociative pattern may be employed to carry emotional charges of different quality which will determine the tragic or comic character of a work of art.³ It will be seen later that the same principle applies to the visual arts. Here the referential use of language corresponds to the representative aspect of the work, its evocative use to the mode of representation. The selective use of exaggeration and simplification for example, determines whether a picture will appear as a caricature or as a portrait.

"NEUTRAL" CHARACTER OF THE EXPLORATORY DRIVE

Before we turn to the bisociative processes in literature and art, we must examine a category of mental activities which have neither a pronouncedly aggressive nor a markedly sympathetic charge, but are emotionally neutral. By "emotional neutrality" we do not refer to absence of emotion—which means apathy or boredom—but, on the contrary, to the state of emotional tension called "curiosity" or "interest." The "neutrality" of this state is reflected by such ex-

* That the emotional conversion of any given pattern from pathos to bathos is easier to carry out than the opposite operation is due to the fact that it is much easier to elicit aggressive than identificatory responses.

pressions as *detached* curiosity or *objective* interest—which are meant to signify that the aim is impersonal and that the state is uninfluenced by any sympathetic or hostile bias. This would seem to indicate that neither the self-assertive nor the self-transcending tendencies have any part in these attitudes. Accordingly, McDougall and other psychologists regard curiosity or interest as an irreducible primary “instinct.” In fact, as we shall see later in more detail, these impulses, which are manifest in scientific research, exploration, speculation, and so forth, are the result of a blending of both basic tendencies into a particularly well-balanced and sublimated mixture. This “*exploratory drive*” (as we shall henceforth call it) can always be analysed into a component of competition or ambition, derived from the self-assertive tendency, and a second component of self-transcending absorption in the “wonders” or “mysteries” of nature. Kepler’s urge to explore what he called the harmony of the spheres expressed in the laws of planetary movement is a typical example of the harnessing of the contemplative attitude, the oceanic feeling, to a specific purpose.



S.-TR. = self-transcending tendency

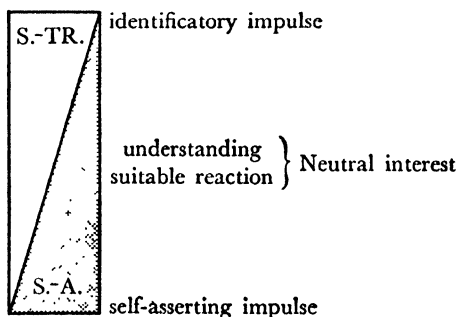
S.-A. = self-asserting tendency

But this self-transcending impulse must, if it is to serve the interests of science, be highly sublimated, that is, adapted to the level and pattern of complexity of our mental organization; and the scientist’s competitive impulses must be equally sublimated to find satisfaction

in the slow, difficult, and unspectacular rewards of his pursuit. It is this highly sublimated character of both components, and their mutual balance, which accounts for the emotional neutrality of the exploratory drive.

It should be noted that the diagram on the previous page is only meant to indicate the neutralizing balance of the two tendencies in the exploratory drive, and does not take into account the degree of sublimation of each component impulse. A scientist may have an unsublimated competitive impulse which impels him to fake his results or commit plagiarism. Conversely, an unsublimated self-transcending impulse will give his work an unconscious bias towards primitive magical conceptions and irrational axioms—which has brought such discredit on research in the field of parapsychological phenomena.

This interpretation of the exploratory drive is borne out by common observation. The expression "to take an interest" in a person or an event is meant to indicate that neither aggressive nor identificatory emotions predominate in our attitude, in other words that our curiosity is located in the neutral zone, somewhere between sympathy and aversion. If no emotion were present, we would be un-



interested in the event or bored by the person ; our curiosity expresses the fact that an exploratory need is felt, composed of the desire to *understand* on the one hand, and to *react* in the way best suited to our interest on the other. But understanding is only possible through

a process of projective empathy derived from the self-transcending tendency, and appropriate reaction is a form of self-assertion. Hence we conclude that the "detached" nature of our curiosity does not signify absence of the two basic tendencies, but their participation in a sublimated and well-balanced form.

We shall discuss some further aspects of the exploratory drive in Chapter XIX. In our next chapter we shall examine the results of its harnessing, as a "neutral" emotional charge, to the cognitive process of bisociation.

XVIII

The Eureka Process

A FEW examples will serve as an illustration for the transition from comic to neutral bisociative processes, from malicious witticism to "wit" in its original sense of creative ingenuity.

One of the courtiers of Louis XV, well-known for his wit, boasted that he could make a pun on any subject.

"Then make one on me," said Louis.

"The king is not a subject, Sire," replied the courtier.

Heine's description of a young virgin:

Her face is like a palimpsest—beneath the Gothic lettering of the monk's sacred text lurks the pagan poet's half-effaced erotic verse.

In this world of perfect justice, rich and poor alike have the right to sleep under bridges.

(Anatole France).

In the first example we detect a faintly aggressive component in the emotive charge (our malicious curiosity as to how the courtier will get out of his predicament); in the second, a derogatory sexual anticipation derived from the combination "Heine" and "virgin";¹ in the third, an aggressive impulse against the social order. But if we analyse our pleasure in these stories, we find that it is only to a small extent due to exploded aggressive and sexual tension, and that

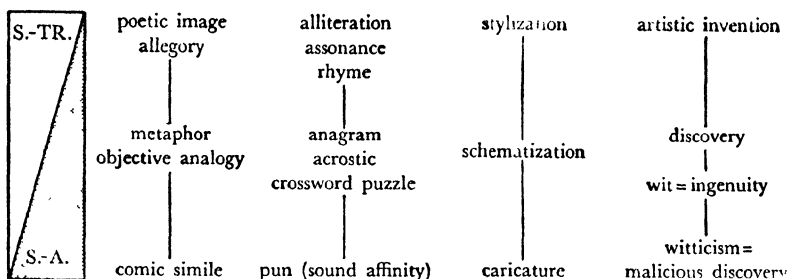
¹ Without this ominous combination, the description itself would strike us as "poetic" rather than "malicious."

the far greater part of our enjoyment is derived from sympathetic admiration of the ingenious answer in the first, the subtle metaphor in the second case, and the perfect *reductio ad absurdum* in the third—in other words, from *intellectual satisfaction*.

Now this intellectual satisfaction is, as we saw in Chapter III, an essential part of the enjoyment of wit, and its contribution to our pleasure is proportionate to the implicitness of the wording which forces us to make an effort to “see the joke,” to solve the riddle contained in it, and thus to relive the creative achievement of its producer. That component in the emotional charge of the narrative which obtains satisfaction in this way is our curiosity or interest, derived from the exploratory drive. According to the two components of the drive, this intellectual satisfaction consists in pleasure at one’s own cleverness on the one hand, that is, the consummation of a self-assertive impulse, and in the pleasure of understanding and admiring on the other hand, the consummation of a self-transcending impulse.

In the gross type of practical or sexual jokes, the emotional charge contains a good deal of unsublimated aggressive or aggressively sexual components, while the “interest” factor is faint. The more ingenious, that is, the more implicit the joke is, the fainter will be this coarse, aggressive component, and the component of neutral interest will increase in proportion. As we enter the “neutral zone,” interest prevails over the other components, and the effect of the bisociative surprise will no longer be laughter, but an amused, then an admiring smile, finally culminating in pure admiration and wonder. We have left the realm of the comic for that of the *neutral arts*. According to the type of bisociation involved, this change in the quality of the emotional charge will transform the comic comparison into objective analogy and metaphor; jest and sally into aphorism and epigram; pun into acrostic and crossword puzzle; joke into riddle; comic situation into problem situation; witticism into ingenuity; the discovery of ludicrous or absurd relations into the discovery of objective and original relations; malicious invention into creative invention.

A further rise in the emotional attitude from neutrality to self-transcendence will cause the metaphor to change into poetic image; problem situation into dramatic conflict; sound affinity into rhyme; imitation into artistic illusion. The comic technique of exaggeration and simplification (caricature, satire) becomes transformed in the neutral zone into the technique of isolating and schematizing the problem (diagrams and charts are simplified "caricatures" of complex phenomena); and this finally becomes the technique of stylization in art.



In the above diagram (which should be read from below upwards) each vertical series represents the successive transformations of one type of bisociation according to the quality of the emotional charge. As we just said, every diagram is necessarily an oversimplified caricature of much more complex and subtle relational phenomena; nevertheless, this schematic representation may serve the purpose of demonstrating the continuity between the three zones, and the phenomena which are manifested in them.²

THE CREATION OF WIT

Up to now we have discussed the effects of bisociative processes only from the recipient's (reader's, listener's) point of view. We shall

² Some of the entries in the diagram, such as "artistic invention," etc., must for the time being seem to be derived from mere deduction by analogy; the reader is asked to take these on trust, pending their detailed study in the following sections.

now turn to the mental process of the person who *produces* the witticism.

We said that the recipient's re-creative enjoyment consists in the discharge of a redundant emotive tension which, through the bisociative surprise, has been separated from its thought context. But what is the origin and nature of the emotional tension in the producer's mind? And what compels him to perpetrate the witticism, to perform an original bisociative act of thought instead of carrying on in the field of associative habit?

Patterns of habit behaviour are only broken when they prove inadequate to satisfy a given impulse, when a stress or striving cannot be relieved in the usual way. Such cases are referred to as "original adaptations" as opposed to the routine adaptations of habit established by past experience. In other words, a departure from habit will occur, and original behaviour will be made necessary, when a need cannot be satisfied within the framework of a given operative field. The stress which results if an impulse drive is thus denied satisfaction within its habitual field we shall call the *creative stress*. Whether it will actually lead to an original solution of the problem set by the obstruction of the impulse, or whether it will exhaust itself in disoriented trial-and-error behaviour, is a further question which does not concern us as yet. The essential point is that such a stress can only be relieved by departure from the original field of the habit and by shifting the locus of operations to a different field, that is, by a bisociative act. We shall illustrate this process by a few examples, proceeding gradually from the bottom of the ascending series in our diagram, from gross comic invention towards the exploratory drive in the neutral zone.

The first schoolboy to have the revolutionary idea of sawing through the legs of the teacher's chair was obviously a creative genius. His usual methods of satisfying aggressive impulses against other schoolboys by knocking them down or shouting being inapplicable in the teacher's case, the operative fields of habit are blocked, and a creative stress results. Generations of schoolboys before him might have experienced the same creative stress, and

exhausted it in the mental trial-and-error activities of thinking out impracticable schemes of revenge. Some hazard, comparable to Newton's observation of the falling of an apple, may have provided the junctional link to the phenomena of gravitation, that is, enabled our boy to see the object of his hostility under the new angle of an inert body subject to physical laws, and thus perform the bisociative act expressed in the Bergsonian formula. Since that pioneer achievement, other generations of schoolboys have elaborated variations of the original discovery and today the fact that it ever was an original discovery seems as unlikely to us as the fact that not until the seventh century A.D. was the symbol zero introduced into European mathematics by an Arab.

This account of a creative process may seem facetious, but we have deliberately started with an example on the lowest level of the scale in order to bring out the continuity of the essential processes involved in the original bisociative act. In all malicious witticism we find an aggressive or derogatory impulse at work which cannot be satisfied by the habitual methods of argument, competition or physical aggression. These operative fields being blocked, a stress results which is eventually relieved in the bisociative processes of irony, satire, caricature, parody, witticism, and so forth. The young man about town, finding his advances repelled by an actress whose "heart is no longer free," is faced with a problem whose solution requires a departure from his usual methods of easy conquest. His desire turns into resentment which looks for an outlet—and finds it in the intersection of metaphorical with anatomical meaning, expressed in the malicious reply that he "never aimed as high as that."

However, to be funny may in itself become a habit, as these various types of bisociative processes become well established, and the wit only has to find some relatively original junctional link. We said before (Chapter IV) that the bisociation of any two given fields, after a few repetitions, degenerates into associative routine through the fusing (the mutual mental attunement) of the two fields in question into one; the original metaphor soon becomes a cliché,

irony a routine, punning a mania. We shall return to the relative nature of originality later on.

One last example from the borderline of witticism and discovery. In Victor Hugo's *Hernani*, a Spanish grandee is condemned to death by the tyrannical Charles V. Alluding to the traditional privilege of the Spanish nobility, he exclaims with a courtly bow:

"Nos têtes ont le droit
De tomber couvertes devant toi."

The grandee presumably felt that rhetorical clichés against autocracy would not cut much ice, nor relieve the tension of his bitter feelings. His bisociative *trouvaille* was to link autocratic practice with constitutional theory, and to demonstrate in a flash that the first makes the second meaningless—the intersection being accomplished in the striking junctional image of a head wearing a plumed velvet hat rolling in the dust. We find the same type of bisociation in Anatole France's aphorism about rich and poor both having the right to sleep under bridges, and again a different variant of it in the ironical homage to paper justice: "Rich and poor incur the same penalties for stealing a loaf of bread." This however is already more than comic invention; the invalidation of political equality by economic inequality is a fairly recent *discovery*—the Jacobins for instance, even men like Robespierre and Saint-Just, had little inkling of it. In retrospect we find a series of analogous historical situations in which the attention of society, its tensions and struggles, were restricted to one particular field, with complete neglect of processes in a different field of relations which, however, intersect with the first and make the results there obtained ephemeral or meaningless. Luther thought that religious reformation would solve all the problems of mankind, and entirely neglected the secular struggle against the aristocracy. The French Revolution broke the power of the aristocracy but neglected the economic factor. The Bolsheviks accomplished an economic revolution but neglected the spiritual and ethical fields. We thus see how the malicious type of

comic bisociation exemplified in the instances just quoted, gradually shades into the processes of significant discovery, to which we will now turn our attention.

The creative stress in the neutral zone is provided by the exploratory drive. The aggressive components in it have become sublimated and balanced by the self-transcending urge to contemplate the natural order of the world and to illuminate its laws. The sublimation of the aggressive component is well exemplified in the quotations from Hugo and France: personal malice has yielded to social satire: this, together with literary ambition, provides a subtle self-assertive drive, which, however, is blended with, and balanced by, self-transcending social interest, and leads to the original formulation of a socially significant fact.

Thus, as we approach the neutral zone, the creative stress turns towards more and more impersonal and relevant aims, until finally it becomes identified with the exploratory drive and the pursuit of truth in its various aspects.

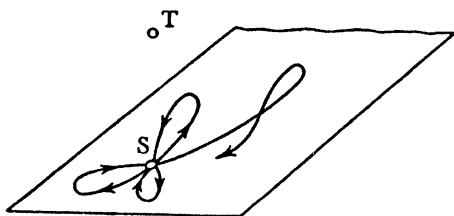
ARCHIMEDES AND THE CROWN

Three examples will serve to demonstrate the bisociative mechanism of invention and discovery. The first is the classic story of Archimedes. As in all discovery the original creative act is followed by secondary processes of formulation and elaboration which in the finished theorem appear blended with the former, the story will be told in a slightly simplified form in order to bring out the more clearly the essential core of the creative achievement.

Hiero, tyrant of Syracuse and protector of Archimedes, had been given a crown allegedly of pure gold, but he suspected that it contained an admixture of silver. He asked Archimedes to find out whether his suspicions were justified. According to the scientific knowledge of the period (third century B.C.), Archimedes' reasoning must have run on roughly the following lines:

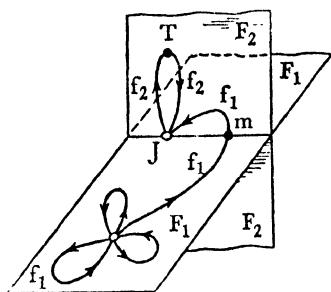
"I can weigh the crown. I know the specific weight of gold. If I could measure the *volume* of the crown, and then multiply it by the specific weight of gold, it would be easy to check whether the result

agreed with the actual weight of the crown, and if not, by how much it departed from it. But how can I measure the volume of the crown? I can measure the volume of solids with regular surfaces like cubes or pyramids, and even of spheres—but how on earth can I measure the cubic content of a crown with all its filigree work and ornaments? Ah, if I could only melt the cursed thing down and measure the liquid gold by the pint, or mould it into a brick with honest rectangular sides; but I can't." And so on. Under the pressure of the exploratory drive, the train of associations will keep moving round in small circles within the field of contemporary geometrical knowledge, and, finding all approaches to its target blocked, will return again and again to its starting point. We may assume that, urged on by the creative stress, the mental process kept going even when Archimedes was not conscious of it. It may be schematized as in the following diagram, where S represents the starting point given by the problem, the slings and arrows represent the various trains of thought within the field of geometrical routine, and T the target (to find a method of measuring the volume of the crown), which, unfortunately, is located outside that field.



Now Archimedes was in the habit of taking a daily bath; but the experiences usually aroused by it were related to the sensations of heat and cold, fatigue and relaxation, sex and beauty, and so on. Neither to Archimedes, nor to anybody else before him, had it ever occurred to connect the sensuous and trivial associative contexts of taking a hot bath with the scholarly pursuit of the measurement of solids. No doubt he must have observed many times that if the bath were too full it would overflow to the extent to which he im-

mersed his body in it. But this trivial experience was so intimately related to the context "bath" that it required the exceptional stress under which he laboured, and a particular constellation of circumstances, to break it loose from its ties of associative habit and to perceive the overflow as a measurable liquid equivalent of the volume of the immersed solid. For, as we saw, "each operative field tends to facilitate its 'permitted' type of association and to inhibit all others" (Chapter IV)—in other words, habits of thought and behaviour are only broken by the disrupting effect of a blocked drive. The core of the Archimedean discovery (which, in the so-called "Principle of Archimedes" appears in a more elaborate form, referring not to volume but to specific density) may now be represented by the following bisociative process:



F_1 is the original field of the problem as in the previous diagram; F_2 is the field of the habitual associative contexts of the overflowing of the bath; m stands for the many "missed opportunities" for connecting the two fields on previous occasions; f_2 is an actual thought train within the context of F_2 ("If I were to immerse my head with the rest of the body there would be an overflow of a pint of water"); and J the junctional link which effects the bisociation of the two fields. The junction may have been a *verbal* concept ("volume of my head equals one *pint*, which equals the measure of the molten crown," or "overflow equivalent to *melting down* solid body or crown"). It may equally well have been a *visual* percept in which the rising water level is seen to correspond to the immersion of the body and then to that of the image of the crown, whose shadow was lurking on the threshold of consciousness; or any similar link. The essential point is that at the critical moment *both* fields F_1 and F_2 were simultaneously active in Archimedes' mind, though on different levels of consciousness. In other words, the creative stress

kept the problem on the agenda even while the surface of consciousness was busy in other fields. Without this constant pressure, the favourable chance-constellation would have passed unnoticed—and joined the legion of man's missed opportunities for a creative departure from the stale habits of thought which numb his mental powers and dim his eyes.

We are told that Archimedes was so delighted with his discovery that he jumped out of his bath and ran naked through the streets, shouting "Eureka, Eureka" (I have found it). Accordingly, we shall henceforth call the mental process which produces an original and relevant bisociation the "eureka process." Apart from its picturesqueness, the term has the advantage of producing rage effects in behaviourists.

After the event, it is easy to make the creative process appear as an act of deductive reasoning, and to represent it in the form of a syllogism, for example, as follows:

First Premise: The volume of a liquid is easy to measure.

Second Premise: The volume of a solid is equal to the volume of the liquid displaced by its immersion;
therefore:

Conclusion: The volume of a solid can be measured by the volume of the liquid displaced by its immersion.

But if it is as easy as that, why had nobody before Archimedes ever made use of this syllogism? Because nobody before him had brought the two premises, which belonged to two different mental fields, to bear upon each other. The immense difficulty, the creative originality of this matchmaking is not apparent in the smooth syllogistic schema. The schema gives the impression that the mental achievement consisted in drawing the conclusion. In fact, the achievement was to bring the two premises under one roof, as it were. The conclusion is merely the offspring of the marriage, arrived at by routine actions. In other words, syllogism and deductive reasoning are not the method of creative thought, they merely serve as its

formal justification after the act (and as a schema for repeating the process by analogy after the original bisociation of the two fields in which the premises are respectively located). The solutions of problems are not "invented" or "deduced"—they are "found"; they "occur."

Because *post factum*, the previously separate mental fields merge into one, and the jagged bisociative act is smoothed out into a now continuous associative flow, all revolutionary innovations appear after a while as trivial and obvious, and we marvel less at the discovery itself, than at the apparently abysmal stupidity of the mental stage preceding it: "How silly of me not to have seen it before." We can add to our mental equipment, *but we cannot subtract from it*. The mutual attunement of two mental processes, once achieved, cannot be undone—except in the gradual decay of senescence and through physical injury to the brain. The phenomena of aphasia in its various forms are so puzzling precisely because they represent "subtractions" or dissociations of mutual attunements between, for example, verbal and visual fields, while, apart from that, intelligence may remain unimpaired. Because of this impossibility to "subtract," it seems well-nigh inconceivable to us that nobody before Newton saw the "obvious" connection between gravity and stellar movements; that not until Freud did the psychological significance of dreams dawn on humanity, though man had dreamed since the beginning of the species; that nobody before Uccello applied perspective to painting; and that some primitive tribes have not discovered to this day that the sexual act has anything to do with procreation. The bisociative flash, which fuses the two fields into one, may take a million years to occur, but once it has occurred, we can no longer separate what we have connected. Bisociation, like all the phenomena of organic evolution, is an irreversible process, and the ignorance of the past, which we are no longer able to grasp, is a useful reminder to pessimists of the unlimited creative possibilities of the future.

NUEVA AND THE INVENTION OF TOOLS

Our second example takes us back to the subhuman level; it refers to the occurrence of the eureka process among Primates.

In *The Mentality of Apes*³ Köhler reports his classic experiments with chimpanzees in Teneriffe, which became one of the foundations of Gestalt psychology. The following account is typical for the discovery of the use of implements by apes:

Nueva, a young chimpanzee bitch, was treated three days after her arrival (11th March, 1914). She had not yet made the acquaintance of the other animals but remained isolated in a cage. A little stick is introduced into her cage; she scrapes the ground with it, pushes the banana skins together in a heap, and then carelessly drops the stick at a distance of about three-quarters of a metre from the bars. Ten minutes later, fruit is placed outside the cage beyond her reach. She grasps at it, vainly of course, and then begins the characteristic complaint of the chimpanzee: she thrusts both lips—especially the lower—forward, for a couple of inches, gazes imploringly at the observer, utters whimpering sounds, and finally flings herself on to the ground on her back—a gesture most eloquent of despair, which may be observed on other occasions as well. Thus, between lamentations and entreaties, some time passes, until—about seven minutes after the fruit has been exhibited to her—she suddenly casts a look at the stick, ceases her moaning, seizes the stick, stretches it out of the cage, and succeeds, though somewhat clumsily, in drawing the bananas within arm's length. *Moreover, Nueva at once puts the end of her stick behind and beyond her objective.* The test is repeated after an hour's interval; on this second occasion, the animal has recourse to the stick much sooner, and uses it with more skill; and at a third repetition, the stick is used immediately, as on all subsequent occasions.⁴

It is obvious that Nueva's accomplishment was not obtained by the trial-and-error method, nor by conditioned reflex. For her behaviour, from the moment her eyes fell on the stick, was unwaveringly purposeful; she did not stumble on the solution by poking about aimlessly with the stick beyond the bars, but seized the stick, carried

³ London, 1925.

⁴ *Ibid.*, pp. 32-33; my italics.

it to the bars, stretched it out of the cage, and placed it behind the banana. This smooth, deliberate sequence of action is something quite different from the behaviour of Thorndike's cats in the puzzle box or of rats in a maze.

The process which led Nueva to her discovery may be summed up as follows. The animal had acquired in her earlier experiences two independent patterns of behaviour. Behaviour within the framework of the first field F_1 is exemplified in the various forms of straining to reach the banana. The second operative pattern F_2 is the habit of scraping the ground with a stick and pushing things about with it. It should be noted that in this aimless occupation the stick is not yet used as an "implement"; it is a playful exercise, comparable to a kitten's playing with a ball of wool. To throw, push, or roll things about is a common animal pattern; the significant discovery of the chimpanzee is the use of the stick for a definite, useful purpose. It becomes an "implement" or "tool" precisely when it is for the first time used to serve as a means towards a given end.⁶

The bisociative act occurred at the moment when Nueva's eyes fell on the stick while her mind was set on the banana—just as Archimedes observed with half his mind the overflow of the water while the other half was set on the problem of the crown. The junction, "stick," may have been given as a visual, or oculomotor, or kinesthetic experience, linking the two fields together. We also find again the factor of the *blockage* of F_1 (the banana being out of reach); the *creative stress* resulting from it, expressed in disoriented

⁶ A number of discoveries in the history of science follow the same typical pattern: some "playful" performance or technique which has hitherto served no concrete purpose is applied to a task with which it had formerly no connection whatsoever. Examples are the invention by Dutch opticians in the early seventeenth century of telescopic toys which Galileo later turned to astronomic use; the invention of the steam engine as a mechanical toy by Hero of Alexandria in the second or first century B.C.; the analysis of conic sections by Greek mathematicians in the fourth century B.C. as a pure mental exercise and their application to astronomy by Kepler and Newton 2,000 years later; the development of non-Euclidean geometry, of the theory of matrices, and other mathematical devices, which seemed to serve no earthly purpose until they were applied to the theories of Relativity, quantum mechanics, etc.

behaviour (howling and lamenting); and the trigger action of *apparent chance* (the presence of the stick within visual range just at the right moment). But in this case we find a further characteristic element which it will be useful to retain. *All* of Köhler's chimpanzees sooner or later learned the use of implements, and also certain methods of making implements. A dog, however skilful in carrying a stick or basket between his teeth, will never learn to use the stick as a rake to get a piece of meat placed outside its reach. In other words, the chimpanzees were *ripe* to discover the use of tools by exploiting the hazard of favourable circumstances. The factor which accounts for this ripeness is the high coordination between eye-movements and finger movements which emerges on the evolutionary level of the Primates. It is this coordination which leads to the urge to push objects about with branches and sticks. Sooner or later the favourable constellation will occur which leads to the individual eureka process. In other words, the statistical probability for a relevant discovery or bisociation increases in proportion as the (still separated) behaviour fields in question become established, developed, and facilitated by repetition. This will later give us certain clues to the puzzling phenomena of the recurrent multiplicity of important discoveries in the history of science, of the parallel development of totemistic rites in unconnected civilizations, and the independent development of certain primitive forms of art in different continents.

Finally, we notice that the eureka process does not consist in inventing something new out of nothing, but in a bringing together of the hitherto unconnected. Nothing is created that was not already there, in the outside world and its mental reflection. Likewise, the so-called "revolutions" in thought consist not in destruction, but in synthesis: In connecting the hitherto unconnected. A beautiful illustration of this is the discovery which more than any other revolutionized the nineteenth century: Darwin's theory of evolution by natural selection.

DARWIN AND NATURAL SELECTION

Frequently, great discoveries consist in several creative acts in succession, which in retrospect appear telescoped into one. In Darwin's case we can distinguish two consecutive eureka processes, separated by more than a year. Each of them consists not in the thinking out of something new, but in the connecting of previously unconnected trends of contemporary thought. The first may be summarized as the bisociation of *evolution through unknown cause* with *selective variations through domestic breeding*, leading to *evolution through artificial selection*. The second step is the bisociation of *evolution through artificial selection* with *struggle for existence*, leading to *evolution through natural selection*. We shall presently analyse both processes.

"Evolution," the theory that one animal species may change into another, and that all species may derive from a common ancestor, was by no means an original idea of Darwin's. By the end of the eighteenth century the cumulative evidence from "the general facts in the affinities, embryology, rudimentary organs, geological history, and geographical distribution of organic beings"⁶ led to the simultaneous appearance of evolutionary theories in a number of European countries. "It is rather a singular instance," Darwin remarks in a footnote to the historical introduction to *The Origin of Species*, "of the manner in which similar views arise at about the same time, that Goethe in Germany, Dr. Darwin in England⁷ and Geoffroy Saint-Hilaire in France . . . came to the same conclusion on the origin of species, in the years 1794-5." (To this list we have to add, above all, Lamarck, whose publications between 1801 and 1815 formed the first comprehensive theory of evolution; Kant and Buffon as its forerunners, Dr. W. C. Wells, Patrick Matthews, and many others.)

Darwin himself became an evolutionist as a result of his observations as the naturalist of the *Beagle*, and particularly through his

⁶ Darwin to Asa Gray, 5/9/1857.

⁷ Charles's grandfather, Erasmus.

study of South American fossils, which showed him "the manner in which closely allied animals replace one another on proceeding southward." After his return from the expedition in 1836, at the age of twenty-seven, he settled down to study his forerunners and to collect more evidence for the evolutionary transformation of species—an occupation which was to last for the rest of his life.

However, this field of enquiry (F_1) soon became *blocked* in a way which is typical of the recurrent crises in science. For the first evolutionists it was a highly exciting and equally satisfying hypothesis that "species had not been independently created, but had descended, like varieties, from other species."⁸ The idea was so revolutionary that none of the early evolutionists, with the exception of Lamarck, took much trouble to think out its full implications. But by the time Darwin appeared on the scene, this new alley of thought had been sufficiently trodden out for him to realize that it had ended as a cul-de-sac. For though the evolutionary hypothesis disposed of the idea of the Creator putting down separately the first serpent, giraffe and walrus as ready-made products on the earth, it gave no explanation of the reasons which caused the common ancestor to transform itself gradually into serpents, walruses, and giraffes. The theory was replacing an X by a Y , the term "Creator" by the term "evolution," which was not much more than a name to cover the phenomenon to be explained—comparable to the nineteenth century physicist's "ether," and to the biological vitalist's "entelechies." The realization of the tautological nature of a unifying formula is one of the recurrent types of crisis in science.

As for Lamarck's theory of the causes of evolution, it failed to account for a whole range of known facts, including Darwin's own observations; and unlike Lamarck, who was rash with hypotheses, Darwin had a profound respect for facts and was always ready to modify a theory accordingly. This again is a typical recurrence in the history of science: the "blocking" of the operative field of a theory by new observations, which the theory is unable to cover.

⁸ *The Origin of Species*, 6th ed. (London, 1873), p. 2.

Thus, the path along which the theory of evolution moved being blocked, Darwin was in the same position as Archimedes trying to work out the volume of the crown, or Nueva trying to get the banana outside her reach. The second observational field, whose mediating action ended the deadlock, was of almost as trivial a nature for a country-bred English gentleman as Archimedes' bath: it was the field of domestic breeding. The improvement of domestic animal breeds is achieved by selective mating—and this process of selection became for Darwin the junctional concept between the world of farming and the problem of the descent of Man. Again, *post factum*, the bisociation of these two spheres seems obvious; today breeding and evolution are fused into one associative context in our minds. In retrospect there is nothing spectacular in Darwin's eureka process—except for the fact that it had occurred to nobody before. As he himself put it in his beautifully modest way:

It seemed to me probable that a careful study of domesticated animals and of cultivated plants would offer the best chance of making out this complicated problem. Nor have I been disappointed; in this and in all other perplexing cases I have invariably found that our knowledge, imperfect though it be, of variation under domestication, afforded the best and safest clue. I may venture to express my conviction of the high value of such studies, *although they have been very commonly neglected by naturalists*.⁹

The discovery of "evolution through (artificial) selection" was, however, merely the first step. Soon the new, synthetic path was again blocked. For in the case of domestic animals, *man* acts as the agent of selection; but who or what selects the favourable variations for mating in the case of undomesticated animals or plants? "How selection could be applied to organisms living in a state of nature remained for some time a mystery to me" (notebook, July, 1837).

This obstacle was more obstinate than the first, and Darwin tried various ways to by-pass it, but none of the working hypotheses which he tried ("laws of change," and so forth) were of any avail. He

⁹ *Ibid.*, p. 3; my italics.

made no progress for over a year, and by that time must have reached the stage when Nueva threw herself on her back and howled—until her eyes fell on the stick. In Darwin's case the stick was Malthus's *An Essay on the Principle of Population*, published in 1797—more than forty years earlier. In it Darwin saw in a flash the "natural selector," the junctional concept he was looking for:

This is the doctrine of Malthus, applied to the whole animal and vegetable kingdoms. As many more individuals of each species are born than can possibly survive; and as consequently there is a frequently recurring struggle for existence, it follows that any being, if it vary ever so slightly in a manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be *naturally selected*.¹⁰

Now the theory was complete; the rest (including "sexual selection") was a matter of elaboration.

That thirty years after its first publication, Malthus's book should fall in Darwin's hands represents the chance factor—a chance similar to the simultaneous and independent rediscovery of Mendel's work by De Vries, Correns, and Tschermak, thirty-five years after its publication. But as in the previous cases discussed, there was a high probability for the occurrence of the apparent chance-constellation, given by Darwin's selective interest in a certain type of reading matter¹¹ and his readiness to connect any likely pattern of ideas with his search for a "natural selector." Twenty years later a different type of apparent chance occurrence is repeated in the case of Darwin's later friend A. R. Wallace, and leads to a repetition of the same Eureka process:

Wallace was lying ill with intermittent fever at Ternate in February 1858 when he began to think of Malthus' *Essay on Population*, read several years before: suddenly the idea of the survival of the fittest flashed upon him. In two hours he had "thought out almost the whole theory," and in three evenings had finished his essay.¹²

¹⁰ *Ibid.*, p. 3; Darwin's italics.

¹¹ Apart from novels, to which he was addicted.

¹² *Encyclopædia Britannica*, 13th ed., Vol. VII, p. 841.

Darwin had not yet published his theory, and his and Wallace's papers were jointly communicated to the Linnean Society. This is another striking example of the coincidence of discoveries—the factor of ripeness of a period for a certain type of eureka process to occur. We also note that in Darwin's case the reaction to Malthus's book was instantaneous, whereas in Wallace's case the subconscious obviously played an important part by storing the memory of Malthus and reproducing it at the propitious moment.

Each original eureka process solves a riddle set to man by his environment. The riddle or problem is posed in the form of an environmental situation requiring an adaptation that cannot be achieved within the framework of habit-thought and behaviour. The path of habitual adjustment being blocked, an emotional stress results which is only relieved when the solution is found. It is found by bringing into the situation a second (thought or behaviour) field which hitherto had no connection with the type of aim pursued. Thus fiddling about with a stick had previously had no connection with feeding in the chimpanzee's case; the overflow of a bath no connection with the measurement of volumes, and overpopulation no connection with the origin of species. The bringing in of such alien fields into a blocked situation represents a new, original type of adaptation, a departure from the biological habit track.

A more thorough analysis of scientific discovery must be postponed to Volume Two, in which the stages of mental evolution, from the conditioned reflex to the eureka process, are treated in a systematic manner. The aim of this chapter is merely to show the bisociative character of discovery, and the continuity of the spectrum of creative processes from humour at one end, through discovery in the neutral zone, to art at the other end.

In this preliminary sketch of the mechanism of the eureka process, no attempt has been made to provide a systematic answer to the question why and how the appropriate second field presents itself at the appropriate moment to the mind, thus enabling it to perform the creative bisociation. We have merely pointed out several factors

which, in varying combinations and degrees, facilitate its occurrence: the *creative stress* resulting from the blocking of F_1 , the factor of "ripeness," the trigger action of *chance*, the intervention of *unconscious* processes, guidance by unconscious or *unverbalized analogies*. Among these, the creative stress is obviously a necessary, but far from sufficient condition of the occurrence of the original adaptation; it keeps the field F_1 permanently on the agenda of the mind, and maintains the mind in a state of readiness to seize upon any favourable occurrence F_2 however remote this may otherwise appear from the problem in hand. But in the overwhelming majority of cases in human and animal behaviour, the creative stress generated by a "blocked" situation will exhaust itself in random trials. And even if, in the course of such trials, chance hits on the right solution occur, they will be overlooked or not retained if the organism lacks the "ripeness" for that particular bisociative adaptation. On the other hand, this factor of "ripeness" stands obviously in inverse ratio to the need for the helping hand of chance. When the individual or the race reaches a stage of ripeness for a certain type of bisociative synthesis, any of the countless chance-constellations which have hitherto passed unnoticed will serve as the spark that detonates the explosion. When Darwin's reading of Malthus enabled him immediately to connect what nobody before him connected, and, even more in Wallace's case, where the match-making agency was not the bookshop but his own feverish memory, the part played by the chance factor is reduced almost to zero.

But though the ripeness of the chimpanzee to use sticks as tools seems to be easy to define in terms of the development of its nervous system (and particularly its oculo-manual coordination), it is not easy to define the "ripeness" of man's mental organization for any particular bisociative synthesis; and this difficulty is the crux of the problem of discovery. The questions of the nature of so-called "intuitive" processes, of elimination by implicit trial and error, of guidance by sensed analogy, and so forth, may be regarded as specific aspects of it. Our attempt at a solution (in Volume Two) will again be bio-psychological: it will apply the concept of the regenera-

tive equilibrium, that is, of “adaptations of the second order” to the original adaptations of discovery; and it will try to show that, just as un verbalized, implicit selective operators guide the explicit verbal processes of habit behaviour, so “operators of the second order” (neural attunements of a tentative, unstable nature on an even lower level of consciousness) may serve as guides for the selection of possible mediating fields F_2 . It will also be suggested that physiological evidence for such “secondary attunements” may be found in the phenomena of neurobiotaxis.

In the present chapter, however, we have been concerned with the processes of invention and discovery more from the descriptive than from the explanatory point of view, and with locating them, as it were, in the neutral, intermediary zone of the continuous scale of the creative mental functions.

XIX

Emotional Dynamics of the Neutral Arts

COMPLEXITY OF THE EXPLORATORY DRIVE

WE MUST now briefly examine some further aspects of the exploratory drive, resuming the thread of discussion from Chapter XVII.

It was said that the exploratory drive is the result of the collaboration of both the self-assertive and self-transcending tendencies in a well-balanced and sublimated pattern. A certain amount of competitive ambition is indispensable even to the most disinterested explorer and scientist. Genetically this sublimated drive may be traced back by the analyst to the original feeding, or sex, or dominative drives. Freudians will insist that all intellectual striving has its roots in sexual curiosity, Adlerians will see in it compensations for organic inferiorities. But the characteristic fact about the exploratory drive is that the genetic origin of its self-assertive impulse-components makes little difference; what matters is the degree of sublimation which they have undergone, their "neutralization" through blending with the self-transcending tendencies, and the medium in which the drive expresses itself. The original drive, thus transformed and adapted to the appropriate pattern of neural organization and social conditions, acquires a great plasticity and can be cast in practically any mould—mathematical research or polar exploration, a passion for Chinese mythology or meteorological statistics. Such sublimated drives may be called "autonomous" in the sense that they have apparently become independent of their original biological aim. In fact, of course, the connection is maintained, but it has become extremely

indirect; the calculation of meteoric orbits is one way of asserting one's ego, though not the most direct one.

Interest can only be stable and sustained if its self-assertive component, however sublimated it may have become, is counterbalanced by the integrative tendency. The latter finds its expression as devotion to the task, love of the medium or material in which it works, that humbleness of approach to the mysteries of creation which characterize the scholar. Under the influence of the integrative tendencies, interest becomes disinterested, as it were, distanced, almost completely detached from the aims of the original drive; and vice versa, the influence of the self-assertive tendencies compels the contemplative monk to cast his shapeless oceanic wonder into the concrete exploration of the earthly manifestations of the Absolute in the sciences and crafts. Again we find two complementary polarizations of interest in East and West: the Oriental being mainly interested in the Absolute with neglect of the concrete; Western man in self-assertive technology, with neglect of the pursuit of the Absolute.

From the above it follows that the pursuit of interest is largely its own reward. It is striking to find this confirmed even on the sub-human level. Köhler describes the behaviour of the chimpanzee "Sultan" immediately after he had discovered how to fit two short hollow tubes into one long one, and thus to rake bananas which were previously out of reach into the cage:

The proceeding seems to please him immensely; he is very lively, pulls all the fruit, one after the other, towards the railings, *without taking time to eat it*, and when I disconnect the double-stick he puts it together again at once, and draws any distant objects whatever to the bars.¹

Similarly, if the original drive in Archimedes' case was the desire to obtain money or favours from the tyrant of Syracuse, the jubilation in his eureka-cry was not, or not mainly, derived from the anticipation of the reward, but from the solution of the problem itself, that is, from the consummation of the impulse on its sub-

¹ Köhler, W., *The Mentality of Apes*; my italics.

limated level. If it were possible to interpret Newton's interest in physics in terms of Freud's libido theory, nevertheless the discovery of the law of gravitation could hardly provide direct sexual satisfaction: it could only provide a much more sublimated form of pleasure.

But though interest thus achieves a considerable degree of autonomy from the quality of the original instinct drive, this autonomy is never complete. The choice of a vocation in which interest is going to exert itself—mathematics, gynaecology, the church or the stage—is, consciously or unconsciously, influenced by the relative dominance and distribution pattern of the basic drives. They give colour and warmth to the particular interest, though frequently in an unconscious way. It is also possible that a primitive drive may survive in a relatively unsublimated form as an unconscious accompaniment of the sublimated interest. An excellent surgeon may be a repressed sadist, the systems of philosophers are frequently influenced by an unassimilated emotive bias, and psychological analysis of an artist is often able to reveal the unconscious roots of certain favourite themes or motives in his work. We may thus have various tendencies on various levels of sublimation and consciousness collaborating in the pursuit of an interest. Accordingly, the satisfaction derived from the successful achievement of a task will be made up of a number of component-satisfactions more or less conscious, and more or less complete. The self-transcending component of the drive finds its reward in the act of achievement itself, through a peaceful, gradual catharsis. The more or less sublimated self-assertive impulse components are the overtones and undertones of the exploratory drive. Their satisfaction manifests itself after the solution of the task as gloating, jubilation, laughter, ostentation, and other forms of triumph—even in physical states equivalent to sexual exhaustion.

CONTINUITY OF THE NEUTRAL AND EMOTIVE ARTS

The witticism, we said, is a malicious eureka process. Professional wits, like Voltaire, are always iconoclasts. Aggression, sublimated

into malice, is the dominant tendency in their character and provides the creative stress. The more sublimated this tendency is, the more ingenious and less coarsely aggressive are its results. As we approach the neutral zone, malice turns into social criticism, the iconoclast is transformed into the revolutionary, the reformer, philosopher, scientist. As we pass further into the "positive" region, the self-transcending creative stress produces the artist, the contemplative, the saint.

We now return once more from the producer to the "consumer." Whether the consumer be a listener to a joke, a reader of a work of science or a visitor in an art gallery, in each case his mental processes are the re-creative echo of the producer's. His "emotional charge" reflects the producer's creative stress; the flash which intersects his narrative corresponds to the producer's flash of inspiration; his bisociative act mirrors the producer's eureka process.

The bond between them is the integrative need for social communication. The consumer wants to partake in the mental exploits and emotive experiences of the creative personality, hoping that he will thus broaden and deepen his own experience of reality. The producer, on the other hand, has an urge to share his experience with others—to have accomplices for his malice, partners in understanding his discoveries, resonance for his own emotions. But the more mixed his potential audience, the more the producer will be compelled to retouch and dramatize his own experience if his urge for sharing it is to be satisfied. He must rely for his effects mainly on elementary emotive stimuli—on sex, aggression, fear on the one hand, sentimentality, pity, admiration on the other. In the nervous processes of the artist or humorist, these less sublimated components play merely the part of the accompanying bass in the creative drive; but in the reproductive presentation to the consumer they are much more emphasized and play the dominant part in the narrative's emotional charge.

For creative achievements in the "neutral" zone, on the other hand, there exist no such means to facilitate the consumer's enjoyment by working on his unsublimated emotions. The cognitive

geometry of Poincaré's discovery of the Fuchsian functions, of Kepler's planetary laws or Planck's theory of quanta cannot be invested with a sexual or malicious charge to increase the listener's emotive tension. His reward will be neither laughter nor tears, merely the catharsis of mental tension, that self-transcending wonder and admiration which characterize the satisfied exploratory drive. It is this complete sublimation and neutrality of the drive, and this alone, which distinguishes creative thought from creative art, and the enjoyment of the one from the enjoyment of the other.

The apparent dryness of science is mainly due, apart from its emotional neutrality, to two factors: its use of symbols as its preferred medium of expression, and the relative preponderance of the routine processes of elaboration, systematization, and so forth, over the part played by creative originality. But art, too, operates with symbols—from the written alphabet to conventionalized visual signs (neither domestic animals nor savages are able to recognize a portrait as a human likeness)—and the difference is merely one in the degree of abstraction of the symbols used. As for elaborative routine versus creative originality, the proportion is not always in favour of art. Einstein's theory of general relativity was contained on one sheet of typewritten paper, and consisted almost entirely of one concentrated eureka process with a minimum of elaboration, while the making of a Byzantine mosaic requires mainly elaborative routine and a minimum of creative vision. In fact, the elaboration of a scientific theory is no more tedious than the routine part of the work of the novelist, painter, or engraver, his struggle with the material. Nor is *utility* a valid differential criterion between the neutral and the emotive arts: pure science has no direct uses, whereas mural paintings, rhymed chronicles, and alabaster vases have. As to the equation of science with logic or reason, art with intuition and the unconscious, this is one of the oldest popular fallacies. It has been emphasized in the previous chapter that no discovery was ever made by logical deduction; each original scientific achievement is a bisociative act on the same mental pattern as the creation of wit and—as the following section seeks to prove—the creation of art.

The fluidity of the boundaries is emphasized by the impossibility of deciding whether chess, or town planning, or cookery, or gardening, or living per se is a "science" or an "art." Even the adjectives referring to one and the other overlap: we speak of "abstract" art, "elegant" mathematical solutions, "amusing" chess problems, and so on. *The artist is a discoverer who sees the familiar objects of experience in new and relevant terms, and projects them into his medium of expression—the mediating field F_2 . The discoverer is an artist working in a medium which excludes all but the most neutralized, formalized symbols of expression.*

EDUCATION AND THE NEUTRAL ART'S

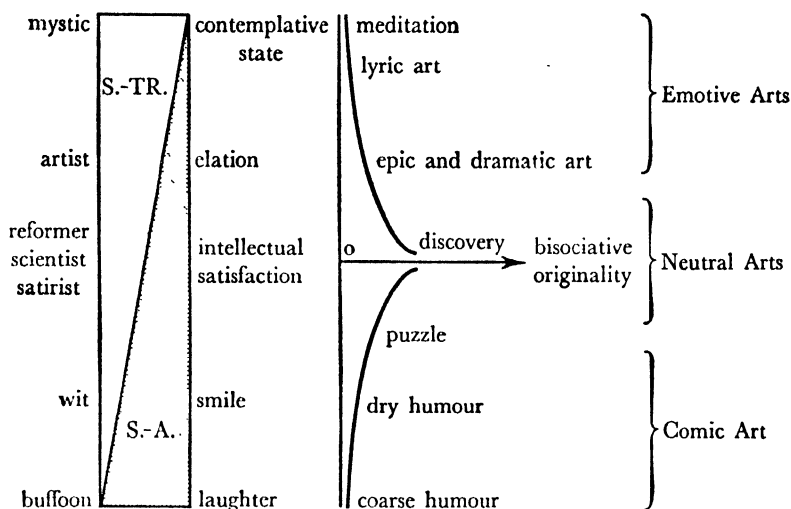
Despite its neutral and highly sublimated quality, man's exploratory drive has been powerful enough to produce the imposing structure of contemporary science and philosophy. From the consumer's point of view, the enjoyment derived from an elegant mathematical deduction like Euclid's proof that there is no highest prime number, a physical theory like Schrödinger's wave mechanics, or an ingenious chess problem may equal that of any other aesthetic experience—provided that the consumer is a person with a developed scientific taste. But the same restriction applies to the enjoyment of the more sublimated, abstract, or formalized types of art—a Bartók quartet, Mr. Auden's poetry, *Finnegan's Wake*; or Picasso's later work. A peculiar development in the appreciation of spiritual values has, however, led to the phenomenon that the average educated person will be reluctant to admit that a work of art is beyond the level of his comprehension, while at the same time he will confess with a certain pride his complete ignorance of the laws which make an electrical switch or the radio receiver work—to say nothing of the laws of heredity or astral movements. The consequence of this attitude is that modern man utilizes the products of science and technique in a purely possessive, exploitive, self-assertive manner, without having any understanding of, or integrative relation to them. His relation to the objects of daily use in his environment is impersonal and dominative—like the capitalist's to his bank

account; and not like the art collector's to his treasures which he cherishes because he "understands" them, because he has a participative, self-transcending relation to them. The products of technical civilization isolate man from his natural environment and sever his integrative relations with it not because they are artificial or evil *per se*, but because his lack of comprehension for science—for the laws relating technique to nature—disconnects this environment from the universal order.

The reasons for this development are partly of a social nature and outside the scope of this book, and partly due to grave defects in our educational methods. Pleasure from the neutral as from the other arts can only be obtained if the consumer—in this case the student—is compelled to relive the creative process. In other words, pedagogy must aim at inducing the student, with appropriate facilitations, to make the fundamental discoveries of science for himself, to relive the few really basic bisociative processes which are the milestones of scientific evolution. That means that the "blocked situations" which faced Pythagoras, Archimedes, Copernicus, Newton, Darwin, Planck, Einstein, Freud should be reconstructed as problems or riddles and, by means of sketching out the historical and biographical or anecdotal background, be invested with emotional tension and made as exciting as common riddles and puzzles are to the avid juvenile mind. The current method of presenting to the student not the problem, but only the finished solution, is to deprive the solution of all interest and stimulus value for the exploratory drive, to shut off the creative impulse, to reduce the adventure of mankind to a dusty heap of theorems.

Art is a form of communication which aims at the sharing of experience, at eliciting a re-creative echo. Education should be regarded as an art first and foremost, and it should apply the technical devices of art for facilitating the reproductive process, such as emphasis on relevance, economy, and effort-compelling implicitness. The *homo novus*, having repeated the evolution of the race in his prenatal development, and the evolution from primitive to civilized mentality by the time he reaches school age, should then be made to

continue his re-creative curriculum by being confronted with the series of fundamental problems, of puzzling impasses, on the road of the conquest of knowledge. Our textbooks and our methods of teaching by enforced retention are relics of the static, preevolutionist conception of the world. For man cannot inherit the past; he has to re-create it.



This extended version of our previous diagrams may be of some use at the end of this section. The vertical axis indicates, as before, the relative dominance of the two basic tendencies in the emotional charge; the horizontal axis represents the degree of originality of the bisociative process (zero = associative habit-thinking).

PART FOUR

THE EMOTIVE ARTS

*They don't understand what it is to be awake,
To be living on several planes at once.*

T. S. ELIOT, *The Family Reunion*

XX

Introductory

(1) BISOCIATION AND THE INTEGRATIVE TENDENCIES

WE saw in Part One that the emotions deriving from the self-assertive impulses are unable to follow the nimble jumps of thought from one operative field to another, are, in consequence, left behind, dissociated from thought, and have to be disposed of through the channels of the discharge reflex.

The self-transcending emotions behave differently. They are capable of following the train of thought round any junctional corner, along such sudden bisociative jumps as the comparison (or "intersection") of a girl's eye with a mountain lake, or of heaven with the eye of a needle. The emotions of participative sympathy attach themselves like a dog to the narrative and do not become detached from it whatever the surprises, jumps, changes of associative climate through which the narrator leads it. The hero of the narrative, once the reader has identified himself with him, cannot be debunked by any intersecting flashes. Adventures which, in the eyes of the unsympathetic reader, would make him look ridiculous, will appear to the sympathetic reader as tragic or moving, and will arouse his pity. The self-transcending emotions, when a bisociation occurs, do not become detached from thought, but follow it loyally to the new field.

We are thus led to expect that the integrative impulses are more supple and malleable, less "massive" and inert, easier directed by thought than the aggressive-defensive ones. We already saw this illustrated in the case of the self-transcending component of the exploratory drive, which is capable of adapting itself to such com-

plex, fine-meshed operative fields as those of mathematical analysis or logistics without losing its impetus—a purely competitive urge in research, without self-transcending curiosity and devotion, would soon dissociate the drive from such tortuous fields and find a shorter way of satisfaction. We also saw that in each of our examples of crying, the reflex discharge of redundant integrative emotion did not disrupt the continuity of the mood, as is the case when aggressive emotions are discharged in laughter. Laughter explodes the self-assertive tension, whereas crying leads merely to a gentle overflow of the self-transcending surplus.

The physiological basis for this difference in behaviour between the two types of emotion is not difficult to find. We compared the emotive, neurohumoral bodily process which expresses the self-assertive impulses to the action of a resonance body attached to the cortical strings. When the pedal on the piano is pressed down, the resonance body is brought into action. As the vibrations of the resonance body have a greater amplitude and inertia than those of the strings, they are unable to follow quick, subtle passages; and, when these are played with the emotional pedal down, strings and resonance body become dissociated, the resonance body still echoing the earlier notes, with the strings already far ahead. We remain irritated after the logical cause for our anger has ceased; the humours of the body persist in their action when the cortex has already forgotten the reason. The self-assertive emotions are more sluggish, that is, have a greater inertia, than thought, and we explained their tendency to persist by the action of the sympathico-adrenal system which charges the circulation with energizing secretions and causes other bodily changes, all of which have to be gradually worked off. These bodily states have a much greater mass momentum than the concomitant thought processes in the cortical neurons; they galvanize the body into action, and, when action is called off, they explode.

But, in the case of the self-transcending emotions, no such mechanism exists. They do not tend to beget muscular action, but tend towards passivity, tranquillity, and relaxation. In contemplative states, whether the object of contemplation is nature, divinity, a pic-

ture or a poem, respiration and pulse are calmed down, muscular tone is lowered, all tension seems to be running out of the body, to be drained from the nervous system; we speak of a calming or purifying effect. In other words, the self-transcending impulses represent a type of innervation which does not lead to active overt behaviour, but to "internal consummation." This internal expending of nervous activity is expressed in glandular and visceral activities and also in counteracting antagonistic, sympathico-adrenal impulses (probably through heightening of resistance in the synapses). This inhibitory action is clearly observable in the soothing effect of music and other aesthetic experiences on angry or frightened people. An intense self-transcending emotion robs even death of its sting.

(2) THE INTEGRATIVE TENDENCY AND
THE PARASYMPATHETIC SYSTEM—A DIGRESSION

It has already been said that it may appear tempting to correlate the integrative tendencies with the working of the parasympathetic system; but it has also been said that such a hypothesis would be entirely speculative; and if some evidence seems to point in its favour, there are other facts difficult to reconcile with it, at least in the present incomplete state of our knowledge of the physiology of autonomic regulations. The sympathico-adrenal system has been called by Cannon an emergency mechanism with the double function of preparing the body for fight, flight, and other violent self-assertive activities, and at the same time restoring the chemical balance of the body fluids (homeostasis). Its antagonist, the parasympathetic division, is concerned with the "protection, conservation and restoration of the bodily resources"¹—that is, with processes which may be called "integrative" in a very broad sense of the word. The action of the parasympathetic has further been characterised by Gaskell and Cannon as "anabolic" in the chemical sense—assimilatory, building up, integrative; that of the sympathetic as "katabolic"—disintegrative, breaking down. This distinction is in curious agree-

¹ Cannon, *Bodily Changes in Pain, Hunger, Fear and Rage*, 2nd ed. (New York, 1929).

ment with Freud's characterization of the Life Instinct as anabolic, of the Death or Destructive Instinct as katabolic.² In most activities concerned with the preservation of the individual and the race, the two antagonistic divisions collaborate—a fact which might be interpreted in favour of the polaristic view of the ambivalence of the two basic tendencies. However, these are considerations of a vague and general nature, which can neither serve to prove, nor to disprove, our tentative hypothesis.

The problem assumes a more concrete character when we consider the manner of action of the two systems. For there is a basic difference in their way of working, which provides a striking parallel to the difference between the massive, inert, persistent action of the self-assertive emotions and the litheness and nimble adaptability of the self-transcending ones. The physiological difference between the action of the two autonomic divisions is that the parasympathetic, unlike the sympathetic, discharges no specific hormone into the bloodstream, that is, produces no persistent chemical changes, and furthermore, again unlike the sympathetic, never goes into action as a compact unit. To avoid going into highly technical details, the following excerpts from recent authoritative works may serve to illustrate the point in question:

The characteristic anatomical organisation of the parasympathetic is correlated with absence of unitary action in this system. It is not surprising therefore that the adrenal medulla (the tissue which secretes adrenalin) has no counterpart in the parasympathetic system, and that no parasympatheticomimetic hormone capable of acting extensively upon organs innervated by this system is liberated in the body.³

In mobilizing the body for combat, the sympathetic component of the autonomic nervous system is thrown into full activity. Large quantities of adrenalin are thereby liberated into the blood stream. . . . The sympathetic tends to discharge *en masse*, whereas the parasympathetic discharges discretely, i.e., only one outflow, or part of one outflow, is active at a time.⁴

² Freud, *Beyond the Pleasure Principle*.

³ Macleod, *Physiology in Modern Medicine*, ed. Bard (1941 ed.).

⁴ Fulton, *Physiology of the Nervous System* (1943 ed.).

In contrast to the sympathomimetic hormones, the vagus substance is rapidly destroyed, and therefore produces very localized response. These effects are in line with the general behaviour of the sympathetic and parasympathetic systems of nerves.⁵

All the viscera can be influenced *simultaneously* in one direction or the other by varying, up or down, the . . . tonic activity of the sympathetic division. And any special viscus can be *separately* influenced . . . by varying . . . the tonic activity of the special nerve of the opposed cranial or sacral (parasympathetic) division. . . . The sympathetic is like the loud and soft pedals, modulating all the notes together; the cranial and sacral (parasympathetic) innervations are like the separate keys.⁶

Thus, if the integrative emotions were of parasympathetic origin, their lack of inertia, their supple discriminative mode of functioning would be automatically accounted for. The whole integrative action of the nervous system tends to keep thought and emotion in harmony. If the self-assertive emotions are occasionally dissociated from reason, this is due to their greater neurohormonal inertia, caused by the massive action of the sympathetic division. As the parasympathetic lacks such a unified massive impulse, there is no cause for its falling out of step with the cortical process, and the normal coordination of thought and emotion would prevail.

Should the physiological hypothesis tentatively outlined in the above digression prove untenable, the observation of overt behaviour in emotional states dominated by the self-transcending tendencies would still provide sufficient evidence for the harmonious attachment of such emotions to the cognitive process. We saw that the same objective situation pattern will produce comic or tragic effects according to whether the emotional charge becomes dissociated from the mental process or not. "*Tout comprendre c'est tout pardonner*" expresses the solidarity of participative emotion with cognition. "Shoot first and then ask questions" expresses the dissociation of the

⁵ White and Smithwick, *The Autonomic Nervous System*.

⁶ Cannon, *op. cit.* (my italics).

aggressive impulse from thought. Self-assertive impulses energize the body, preparing it for action; self-transcending emotions de-tend the body as no action is required. Sudden changes in the cognitive aspect of the situation which require a reorientation of the impulse will in the first case lead to a rupture between thought and emotion, in the second case to a gradual readjustment of emotion to thought. When flashes of surprise occur in the plot of a novel or drama, showing the hero in a completely new associative context—Odysseus' companions transformed into swine, or chaste Ophelia singing obscene songs—our emotion, if it were aggressive, would refuse to follow the intellectual jump and explode in laughter; while, if sympathetic, it will be transferred at each junction from the field of the narrative to that of the flash without any of the tension being spilled. It is obviously a type of emotion which, when the original thought chain is "decapitated," sticks to the knife. Love, wonder, admiration, pity, empathy are emotions which loyally follow thought through all vicissitudes of their object and keep the mind in a state of harmonious coordination.

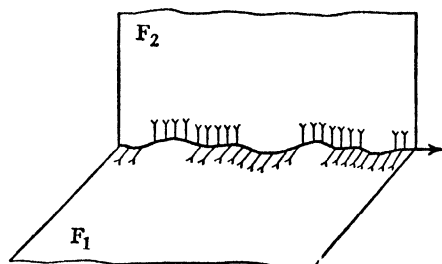
It will be useful to repeat at this point that emotional charges leading to laughter may well contain components like sympathy and admiration (for Don Quixote for instance). All that is required for a moderately comic effect is that the aggressive factor should be present in sufficient strength to provide the required inertia of the impulse. The humanization of laughter from infantile and primitive cruelty to adult and civilized humour expresses the gradual infusion of integrative components into the blend. However, the persistent residue of "triumph" and "cruelty" and "self-congratulation" which has so much baffled Professor McDougall, remains the *conditio sine qua non* of humour.

But while humour becomes humanized by the infusion of identificatory components, its counterpart is easily spoiled by even a slight admixture of aggression. The concomitant increase of imaginative inertia and "clumsification" deprives the emotive impulse of its lithe adaptability and supplies the sneer at unorthodox forms of art.

(3) THE EMOTIONAL VALUE OF FIELDS

It follows from the preceding, that bisociation in Art⁷ does not explode the emotion in muscular activity, but causes it to ebb away gradually as the impulse is consummated in internal behaviour. The comic anecdote ends at the line of intersection of the two fields; the narrative of Art moves as it were permanently on or near the intersection line. The anecdote ends with a surprise; Art is surprise in permanence.

Taking the emotional factor into account, the sustained bisociative process may be represented as follows:



The short lines radiating like plumage from the narrative indicate the associations which it evokes in the listener's mind, according to the operative pattern of each field. It is from these associative evocations—sensory images, ideas, memories, expectations—that the emotional charge is derived. They “feed” emotion into the narrative, the short lines standing for capillary roots or feeding tubes, as it were. When the narrative is transferred from one field to another, it will evoke associations according to a different selective operator, a different hierarchy of associative priorities; and this change in “associative diet” has, of course, a direct influence on the emotional charge. When Mark Antony is shown to us first as a soldier and politician on the historical plane F_1 , later as a lover in a private intimate context F_2 , the narrative oscillates between the two fields. In the scenes of conflict, when he is both at one and the same

⁷ To avoid the awkward expression “serious art” as opposed to comic art, Art with a capital will henceforth serve to denote the former.

time, the narrative joins the line of intersection: the hero is bisociated with two simultaneous and mutually exclusive associative attunements—one of the main mechanisms of dramatic art. But what happens to the emotional charge in this dilemma?

Obviously, our emotional state with reference to the hero consists of (*a*) a fairly stable component; namely, our attitude to him, built up in the past by the narrative, and (*b*) of a variable component, that is, the emotion derived from the momentary situation and its associative pattern. The succession of these (*b*) components is what “feeds” the narrative and is synthesized at any given moment in (*a*).

Now it is clear that the emotional “calorie value” of the two fields is different. For the average female spectator, the scenes between Antony and Cleopatra are better feeders of the emotional charge than those between Antony and his partners in the triumvirate; for the politically or historically minded person, the opposite is true. And where the narrative is bisociated simultaneously with both fields, the woman will experience the scene mainly in terms of one field, the historian mainly in terms of the other. In other words, when two fields are bisociated, the emotive charge will be transferred to that field whose associative structure is more favourable to the deployment of the integrative tendencies.

In the example just quoted, the emotive “calorie value” of each of the two fields depended entirely on the psychic make-up of the individual spectator. The woman can best achieve self-transcendence in love, the scholar in the field of history. These individual field preferences vary according to personal conditioning,⁸ but each period and pattern of culture has its common denominators, its hierarchy of collective field values. Furthermore, the history of Art seems to indicate the existence of something like a perennial hier-

⁸ We shall see later that the essence of personality or character consists in such individual hierarchies of preferences for certain operative fields. It determines the “way of thinking” characteristic of the person, his perception of the world “in terms of” such and such preferred selective operators, his capacity for obtaining emotional satisfaction according to certain “rules of the game” or “codes of behaviour.”

archy of field values which is fairly independent of period and culture—and on which the durable common features of Art depend.⁹

Now in the contemplation of a work of Art, emotive impulses are not merely created, but also satisfied or consumed. In comic art the two processes of creating tension and of consuming it in the explosions of laughter are separate stages, the latter succeeding the former. But we also saw that frequently the two processes may overlap in time; namely, when part of the charge is not exploded but “internally consumed” in the smiling anticipatory pleasure of the joke, while simultaneously active tension is still being built up. In the Arts, where the passive self-transcending impulses dominate, this overlapping is much more pronounced; in fact, excitation and relief are no longer distinct events in time, but parallel processes of varying emphasis. At times, excitation will increase considerably, while the simultaneous catharsis will be scarcely conscious, although present. At other times, pleasurable relief will dominate, while the “feeding” of the emotion will continue in a more subtle way, which is not experienced as “exciting.” In the classic tragedy there is a fairly regular curve of emotional tension, increasing up to the climax and then ebbing away; but even in the most exciting phases when the emotional curve leads steeply upward, there is always a component of aesthetic satisfaction, an irradiation of the self-transcending impulse, just as a small amount of high-voltage current is always transformed into heat. In the cathartic phases on the other hand, when the curve of tension ebbs, almost the whole of the current is transformed into, and consumed in, a gentle inner glow.

Of course, the specific pleasure in Art is derived, like all pleasure, not from the creation of the impulse but from its satisfaction. Excitation is merely the means towards this end. *The aesthetic experience consists in the satisfaction of self-transcending impulses in internal behaviour.* Like mystical contemplation, it is characterized by the ebbing away of all trivial stresses, the purging of the mind from the dross of its normal preoccupations—hence the word ca-

⁹ The problem of this hierarchy of values will be discussed in Chap. XXI.

tharsis. The more complete this process of cleaning and purification, the higher the value of the aesthetic experience.

Now, it looks at first sight as if the aesthetic experience could only purge the mind of those tensions which the "narrative" itself has created, as if it could only take out of the nervous system what it has just put in, thus leaving the mind in the same state as before. That this is not so, we know by experience. A good laugh and a good cry have a more lasting aftereffect than is warranted by their actual stimuli. The cumulative effect of prolonged, even passive, preoccupation with Art leaves its mark on the whole personality, in the same way—though in a less pronounced manner—as mystic contemplation does. We speak of the educative influence of Art, the refinement and spiritualization of character under its influence. This could not be so if Art were a mere pastime, artificially creating emotional impulses and then consuming them like elaborate birthday cakes.

The fallacy of this conception becomes at once obvious when we remember that the emotional charge of any Art narrative is not provided by the artist, but has to be "worked up" by the recipient. The artist and his work do not provide the current like an electric company, only the installation; the current has to be generated by the consumer. But although this is quite obvious once we remember it, although we know that emotion cannot be handed on from a person or an object to another person, like food or money, we tend to fall into the mistake of taking a metaphor at its face value, and believe that the stage play literally "provides" us with a thrill against cash payment for our seats, and that emotions are thus traded like wares. What we *buy* on the market of Art—a picture, a book, or a seat in the stalls—is, however, not emotion, but a set of stimuli designed to elicit integrative impulses in us and to canalize them in such a way as to lead them to satisfaction—while otherwise they would remain frustrated, or look for coarser outlets. For our nervous system constantly generates all kinds of tensions which run through our minds like stray eddies and erratic currents. The set of stimuli provided by the work of Art draws energy from this tension-generat-

ing organic source and leads it to catharsis. It does not drain something that it has previously pumped in; it draws, as it were, on the consumer's own reservoir of integrative energy.

The process through which this result is achieved we have already discussed. The narrative, that is, the set of stimuli offered by the work of Art, concentrates our attention, excludes from it all the other trivial stimuli which at other times elicit a jumble of diffuse impulses from us. Through its associative "feeders" it gathers up all available nervous energy and expends it in a specific mode of internal behaviour. In other words, the work of Art merely helps us to actualize and deploy our own self-transcending tendencies—it *teaches us to integrate*.

Now we saw in the previous section that this process depends on the type of operative field in which the narrative moves. The woman in the audience whose mind responds primarily to the aspect of Antony as a lover will also get the greatest emotional satisfaction from this aspect, the historian in the audience from the other aspect, to which his mind is attuned. We further said that beyond such individual field preferences there exists an over-all hierarchy of emotional field values. If this term previously sounded somewhat ambiguous, we may now define it more closely: *The "value" of an operative field is determined by its capacity to facilitate the generation and consummation of self-transcending impulses.*

Whenever a narrative moving on a given field F_1 is suddenly associated with a field of "higher value" F_2 , a specific mental experience occurs. It is an experience closely akin to what the contemplatives call "spontaneous illumination," and is the main source of aesthetic enjoyment. Its *intellectual* aspect is the sudden perception of the object in a new, brighter, and more relevant light, a new and deeper understanding of the objects of trivial experience, in short a eureka process which is the positive counterpart of the malicious eureka process of the joke. Its *emotional* aspect is the result of the transfer of the integrative charge from the narrow associative meshwork F_1 to the wider associative net of F_2 , with its greater emotion-absorbing capacity, in which it can suddenly expand—like water

drained from a pipe into a wide system of irrigation channels. *In this simultaneous occurrence of intellectual illumination and emotional expansion, which are but two aspects of the same bisociative process, lies the essence of the aesthetic experience.*

(4) THE SERIAL NATURE OF AESTHETIC EXPERIENCE

As a rule, the aesthetic experience does not consist in a single bisociative process, but in a series of them—except for such very condensed forms of art as the aphorism, or the aphoristic type of three-dots-and-a-dash caricature.

The series of bisociative processes may be drawn out in time, as in the case of literary narratives, or follow in such quick succession that the individuality of each separate process is not noticed, the series apparently melting into one confused process, as in the case of the contemplation of a picture or cathedral. This is one of the main causes of the difficulty of defining what it is one likes in a picture, and of the relative vagueness and confusion of Art criticism, as compared with the greater analytical precision of literary criticism.

These series of bisociations follow a general law of mental evolution, already alluded to in Chapter IV, that is, two previously separate fields, F_1 and F_2 are integrated by habit into a higher field, $F_{1, 2}$, which in turn becomes bisociated with a new field F_3 and after a while merges with it to form the next higher field, and so on. The following example may illustrate this process.

In the *drama*, the first fundamental bisociation in the series is the creation of the illusion that the events represented are occurring here and now, regardless of how distant they really are in space and time. For this purpose certain people are disguised in costumes and put on the stage with masks or grease paint on their faces. The effect of this procedure is the creation of a very lively bisociative state in the minds of the audience.

The spectator knows with one compartment or field of his mind that the actors are ordinary people; he probably knows their names; he knows that they are “acting” with the direct purpose of creating an illusion in him, the spectator; and he probably passes judgement

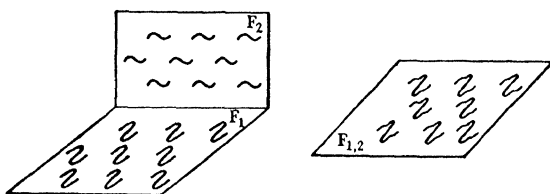
on the quality of their performance. Yet in another compartment of his mind he experiences fears, hopes, and other emotions, all derived from an action which in the simultaneously present first field he knows to be pure make-believe; and the thoughts and emotions derived from the second field are so intense and genuine that they give rise to palpitation, clenched fists, sobs, and tears. The spectator thus moves on the intersection line of two mutually incompatible fields, his mind divided into two compartments—in other words, he is in a state of split mind or schizophrenia. That this comparison is not exaggerated, everybody can check by watching his own reactions in the cinema. It is indeed a fantastic split-mind phenomenon that, knowing all the time that we face a screen onto which shadows are projected by a machine, and knowing, furthermore, fairly well what is going to “happen” at the end, that the lovers will triumph or the detective arrive just in time, we are yet capable of accepting and reliving the illusion. It is even more remarkable that this capacity to live simultaneously on two planes and against payment of a fee is accepted without wonder as a natural phenomenon. We smile at the naïveté of the savage, who believes that a masked dancer is a demon, yet in the cinema we are equally naïve. We buy our ticket for an hour of bisociative schizophrenia as we buy a ticket for a bus ride.

The explanation of this paradox is the fact (compare Chapter IV) that any bisociative process, by repetition, becomes a habit, that is, an associative process in a new, single, composite field. A joke, when repeated, is no longer experienced as a narrative cut by a flash, but as a single, continuous narrative:

becomes  . A revolutionary discovery becomes after a while a commonplace: the revolution consisted in the bringing together of two trains of thought, which now are fused into one. Similarly we may represent the merging of two fields into one according to the following diagram, where the wave-pattern on each of the original fields is meant to represent its selective associative attunement; and the composite pattern of the new operative field



is derived from the superimposition of the two original patterns:



The wave patterns in field F_1 refer to associative attunements of a specific type; for example: "Laurence Olivier is better today than last time," "Hamlet suits him better than Oedipus," and so forth. F_1 is the field of reality, where all associations relate to reality. Field F_2 is the field of illusion. The field $F_{1,2}$ is that of the experienced theatregoer. To associate in both ways in quick oscillations has become a habit with him, so that the two patterns of thought no longer exclude each other. He is now capable of perceiving the same event simultaneously from two different angles; his mental processes have become attuned to the composite vibration pattern. He no longer experiences the naïve thrill of the child or savage who sees a play for the first time, and whose enjoyment is derived not so much from the quality of the play, as from the experience of the illusion as such. (Hence the primitive audience particularly enjoys stage effects, as they underline the character of illusion.)

Thus habit has transformed the two originally bisociated fields into one field of a higher order. When we go to the theatre or cinema, we take the illusion for granted, that is, it has become implicit in our perception, an implicit component of the selective operator (compare Chapter IV); the re-creative process has become automatic and lost its particular intensity. If drama consisted merely in the creation of illusion, regardless of the quality of the illusion created, it would bore us and cease to be an Art.

However, drama is not merely the creation of illusion on a stage, just as painting is not merely the creation of illusion by canvas and

pigment. For the primitive and the child the mere fact that something real can be represented by a drawing or by impersonation is a source of re-creative wonder and delight. As long as it remains fresh, the bisociative mechanism—a circle and a few lines being perceived as self-made pencil marks *and* as Uncle Edward at the same time—is satisfactory in itself. Once it has become habit, the activity loses its magic and interest, unless and until the higher bisociations of Art come into play.

The following chapters are devoted to the analysis of a few relevant bisociative patterns in literature. A comprehensive analysis of the whole series would be an interminable, pedantic, and tedious undertaking. We shall have to confine ourselves to demonstrating by these examples that the *aesthetic experience is derived from bisociative patterns of perception "charged" with integrative emotions, which together provide the necessary and sufficient condition for it.* Once the method is established, its application to other forms of Art becomes obvious and need not be catalogued.

The bisociative patterns discussed in the chapters to follow are: the creation of illusion, metaphor and poetic imagery, rhyme and rhythm, character in fiction, dramatic conflict.

In analysing each of these patterns we shall employ the following methods:

1. Description of the operative fields.
2. Analysis of their emotive value.
3. Technical criteria:
 - a) originality
 - b) relevance
 - c) economy.

XXI

Patterns of Illusion

THE SHARING OF EXPERIENCE

LITERATURE begins with the telling of a tale. This tale is the representation of a sequence of events by sounds or visual signs. The events thus represented are mental events in the teller's mind. They consist of perceptions, images, ideas, emotions and other nervous processes. They may refer to the spectacular deeds of gods and heroes, in which case the tale is loosely called epic; or in a more general way, to life, death, nature, love, and so on, in which case the tale is loosely called lyric. Whatever the nature of these mental events, and whatever they refer to, the central impulse in telling the tale is to share them with others. The teller strives to express his experience in order to communicate it to others, that is, to cause others to experience similar mental states and thus to establish a more intimate communion with them, to transcend the isolation of his self. Artistic expression is thus one of several ways of satisfying the integrative tendency by sharing of thoughts, emotions, sensations, imaginations.

The tale may be told directly to an actual audience by a bard, or to an imaginary audience by drawings and symbols, or the audience may be God and the experience communicated in the Art of prayer, or it may be a single person and the experience communicated in the Art of loving. The more developed his integrative tendencies and the more intense his experience, the stronger will be the teller's urge to share them, the more painful his loneliness and frustration if he does not succeed in sharing them.

In order to achieve his aim, to make the audience share—that is, relive—his experiences, the teller of the literary tale must present them in such a way that the audience will be confronted with a set of stimuli resembling as closely as possible the original set of stimuli which caused the experience to occur in the teller's mind. This obviously is a very difficult task. The teller of the experience of walking through a field on a summer morning cannot supply the audience with the smell stimuli of the grass nor the colour stimuli of the sky. In other words, he asks the audience to produce reactions to things which are not there. But as nobody can respond to stimuli which are not there, the teller of the tale has to devise a set of substitute stimuli which serve to create in the minds of the audience the illusion of being confronted with the original stimuli. Since the dawn of civilization the tellers of tales have produced bags of tricks to provide such ersatz stimuli. The sum total of these tricks is called the literary technique.

THE ILLUSION OF THE HERE AND NOW

The oldest and most fundamental of these tricks is to give the audience the impression that the events represented are happening here and now, regardless of how distant they really are in space and time. In the drama the actors act as substitute stimuli of flesh and blood. They are not substitutes for the persons whose names they carry on the program, but substitutes for the teller's mental image of those persons. If it is a historical play, it does not represent history, but the author's experience of history. And as the aim of literary art is not the teaching of history but the sharing of a mental experience, it is irrelevant whether the play conforms to historical fact or not—with this proviso, that if the events as represented clash too obviously with the events as known to the audience, then the audience will not respond to the stimuli provided, and the play will defeat its aim. This relation holds not only for the representation of what is known as historical reality, but of any other kind of reality as well. It has a particular importance for pictorial art, as we shall see later.

The bard and his successors, the tellers of tales in verse and prose, have no such direct ways of creating illusion by putting actors on a stage. They have to employ more indirect methods to facilitate the sharing of their experience by the audience. However, in certain forms of the epic tale the bard employs methods which closely resemble the technique of the stage: he "dramatizes" his tale.

The dramatizing of an epic tale aims, like the drama itself from which it is derived, at creating the illusion that the events told are happening here and now. One of the tricks serving this purpose is the use of direct speech. Instead of talking in his own name to the audience, the teller uses his characters as mouthpieces, by imitating their voices or putting their speech into inverted commas. The inverted commas are substitute stimuli for actors, who in turn are substitute stimuli for the teller's experience of the historical or mythological characters. This greater indirectness makes us expect that the epic is a more recent form of the sharing of experiences than the drama; and indeed the oldest forms of art among all primitive peoples derive from the ritual personification of certain seasonal events—spring, rain, harvesting. The forces of nature are personified as demons and gods, and the painted, masked actors represent the event in a kind of ritual ballet.

In the older forms of the orally transmitted epic tale, dramatization by direct speech, gesture, and modulation of voice played an important part. The minstrels and troubadours, the jocalators or jugglers, the *scôps* and the singers of the *chansons de geste*, were direct descendants of the Roman mimes. They were actors who, having lost their occupations when the Roman drama decayed, had become vagabonds, and diverted their patrons with a mixture of joking, dancing, tumbling, juggling, and with tales as much acted as told. The early minstrels were officially called *histriones*, that is, actors; thus the bard Taillefer, who sang the *Chanson de Roland* during the Battle of Hastings, is described as a *histri* or *mimus*. The early minstrel's art was probably a one-man dramatic show, the teller acting by voice and gesture the different parts in his tale.

In the *written* form of communicating experiences, the creation

of illusion, of the here and now, has to be achieved by even more indirect and subtle methods, but the direct dramatic approach never fully disappears. The use of direct speech is as frequent in the modern novel as in the Homeric epos; in American contemporary writing the dramatic dialogue even tends to replace the epic narrative. Other, now obsolescent, forms of dramatization are the use of the historic present, the use of illustrations in fiction, and such suggestive admonitions to the public as "look," "lo and behold," and other naïve attempts to make them believe in the here and now of the tale—up to the Victorian novelist's more shamefaced invitations to the gentle reader to follow him to a certain house in a certain town on a winter evening of the year 183—, and peep through the window.

THE AESTHETIC VALUE OF ILLUSION

The two fields bisociated in creating illusion may be conveniently called the fields of the Here and Now and of the Then and There. The Here and Now field is usually referred to as the "medium" (the stage with its actors, the bard's voice, the printed book, the painter's canvas and pigment, the sculptor's stone or clay); the Then and There field is usually referred to as "what is represented." It should be remembered, however, that what is represented in Art is not real things and events, but the artist's experience or imagination of the nature, sequence, causes, shapes, and colours of those things and events. The Then and There of the second field thus refers not to the model, but to the artist's vision of the model; not to the Trojan war, but to Homer's idea of the Trojan war.

Whether we define illusion as the mistaking of the Here and Now for the Then and There or vice versa is irrelevant. We may as well say that the castle in Elsinore has been transported onto the stage of the Old Vic, as that the stage of the Old Vic has transformed itself into a castle in Elsinore; that the past has been brought forward to us, or that we have been transported back into the past. Where two planes intersect, it is pointless to ask which plane intersects the other. This intellectual reversibility, which we have already

encountered when analysing wit, is the hallmark of all bisociative processes.

But we also saw that while the two fields (of the narrative and the flash in the former case) are reversible as far as their intellectual geometry is concerned, their emotional values differ. And the aesthetic experience consists precisely in the unfolding and satisfaction of self-transcending impulses by their transfer from one field to a second field with a higher emotional value. The locus of self-assertive, aggressive behaviour is always in the Here and Now; and the transfer of interest and emotion to remote persons and locations is in itself an act of self-transcendence in the literal sense. For interest will only turn to the past and the remote under the lure of a hero or heroes with whom the spectator sympathizes, with whom he partially identifies himself, and for whose sake he temporarily renounces his preoccupation with his own worries and desires. Even if the hero is merely a cowboy in a cheap thriller, the emotions of terror or rage which the film evokes are vicarious emotions based on identification with the hero, that is, on an act of self-transcendence (compare Chapter XIV, Vehicle Function). Thus the creation of an illusion is in itself of integrative value, regardless of what is represented or how it is done, and gives rise to an aesthetic experience. And if we substitute for "aesthetic value" the ambiguous term "beauty," we arrive at the apparently paradoxical conclusion that *every bisociative illusion creates the experience of beauty*.

Naturally this experience of beauty is the crudest and most primitive form of aesthetic enjoyment and will only last as long as the illusion is fresh, that is, while it is still a bisociative process and has not yet become a habit. But as long as the novelty lasts, the experience is there. The child's and the primitive's delight in any pictorial or staged representation is a genuine aesthetic experience, and the imitation will be called the more "beautiful" the more it is "true to life." Modern theoreticians of Art are apt to forget that for the vast majority of their contemporaries the measure of "beauty" is still "likeness," and that they themselves in their childhood went through a stage, prior to their discovery of the higher

series of aesthetic criteria, when their aesthetic yardstick was the same. To deny the majority of mankind the capacity for aesthetic experience, and to restrict the term "beauty" to the more implicit, sophisticated, or fashion-bound forms of artistic expression, is, of course, an arbitrary proceeding.

However, we saw that the effect of illusion soon fades under the wear and tear of repetition. When the two fields have merged into one, the magic vanishes and with it much of the emotional value. For the child a visit to the theatre is in itself an aesthetic thrill; for the adult it is the precondition of seeing a good or bad play. Its effect of "goodness" or "badness" will be determined by criteria of a higher order; but these cannot come into play unless the precondition is fulfilled, that is, illusion is created, the Here and Now connected with the Then and There. In a similar way, pictorial art, however stylized or abstract, always represents something, and gives the illusion of something which is not the canvas plus pigment. The medium which is Here and Now never acts by itself; it always stands for, is bisociated with, a Then and There, that is, with an experience of the artist's which the onlooker is called upon to share.

It follows from the above that the aesthetic value of illusion is derived from the detachment of psychic energy from its habitual outlets, and its transfer to a field remote from self-interest. This seems to point in the direction of an escapist or distraction theory of Art. The derogatory taint of these terms should not frighten us if they contain a grain of truth. In this case, however, it is indeed not more than a grain. For the "escapist" nature of illusion is only one, and the most elementary aspect of Art—a necessary, but by no means sufficient condition. And further, if in this limited sense Art is an escape from the Here and Now, it is a quite particular type of escape, sharply distinguished from such distractions as gambling or competitive sports, which may provide temporary forgetfulness of ordinary preoccupations, only to exchange them for other self-assertive pursuits.

A further characteristic of artistic illusion is that it does not consist in a clean shift of attention from the field of reality to the field

of make-believe, but that both fields are simultaneously present in the mind. An audience which completely forgot the Here and Now and completely accepted the reality of what went on on the stage would not be experiencing Art but a hypnotic trance. A savage visiting Madame Tussaud's and mistaking the wax figures for real people would not be aesthetically thrilled but scared. Art is inseparable from that delicate balance arising from the simultaneous presence of both fields in the mind; from seeing a thing in two different illuminations, in two mental contexts at one and the same time. It is this precarious suspension of the narrative between two fields which makes possible the continuous flux of emotion from the lower field to the higher, and the catharsis or purification resulting from it.

We have derived the aesthetic value of dramatic illusion from the bisociative transfer of emotional impulses from preoccupation with the Here and Now to self-transcending participation in the remoter fields of Then and There. When interest becomes detached from the self, it must attach itself to something else; in other words, when the level of self-assertive tension falls, the integrative tendencies become automatically dominant. This is the simple reason why any detached, interest-absorbing activity is in itself of integrative value. "Detached" is used here in the sense of "not dominated by self-asserting impulses." A little boy who tears off the wings of a fly with apparently "detached" curiosity is not really detached. Anybody with an inkling of psychoanalysis can point out the connection between his action and his unconscious aggressive impulses.

Art is thus a means for the actualization of man's integrative tendencies, whose unfolding is frustrated in the struggles of everyday life by the self-assertive impulses. In the absence of stimuli for his egotism, man is an altruist. When he changes from his business clothes into a dark suit and goes to the theatre, he at once shows himself capable of taking a strong and entirely unselfish interest in the destinies of the persons on the stage. He goes further than that: his liberated self-transcending impulses become directed into certain aboriginal channels. He participates in the hopes and sufferings of

the persons—he has become subject to the primitive sympathetic magic of *identification*.

THE EMOTIONAL DYNAMICS OF ILLUSION:
IDENTIFICATION AND MAGICAL PARTICIPATION

The process of identification enters the dramatic illusion in two stages. The first is the partial identification in the spectator's mind of the actor with the character represented; the second is the partial identification of the spectator's self with one or several of the characters. In both cases the identification is partial; that is, the actor is simultaneously perceived as Hamlet and as Laurence Olivier; and consciousness of the self is not entirely relinquished while it participates in Hamlet's emotions. A total identification would, as we saw, correspond not to aesthetic experience but to a hypnotic or somnambulistic state.

However, these partial identifications are nevertheless psychically real. They express themselves in physiological symptoms—palpitation, heavy breathing, tears, even syncope. And we have every reason to believe that they are late and weakened derivatives of magical ritual, of the primitive experience of oneness in diversity; of the substantial identity of the masked dancer with the demon he mimes; of representation and the thing or person represented. We saw that such identifications, or to use Lévy-Bruhl's term, *participations*, are basic factors in the mental experience of the primitive and the child, and manifest themselves regularly in the dreams of the civilized adult.

In the collective representations of primitive mentality, objects, beings, phenomena can be, though in a way incomprehensible to us, both themselves and something other than themselves. . . . In other words, the opposition between the one and the many, the same and another, and so forth, does not impose upon this mentality the necessity of affirming one of the terms if the other be denied, or vice versa. . . . By designating (this mentality) as "prelogical," I merely wish to state that it does not bind itself down, as our thought does, to avoiding contradiction. It obeys the Law of Participation first and foremost. Thus

oriented, it does not expressly delight in what is contradictory . . . but neither does it take pains to avoid it. It is often wholly indifferent to it, and that makes it so hard to follow.¹

This description of prelogical mentality may be applied without any alteration to the mental state of the person seeing a film. He knows that what he sees is merely a projected shadow of a gentleman called Humphrey Bogart, and yet in a way "incomprehensible to us," this shadow on the screen is both "itself and something other than itself." The spectator is "indifferent to the contradiction" and obeys the "Law of Participation first and foremost."

These primitive magical sources of the artistic illusion cannot be explained away by platitudinous statements such as that "the spectator is so absorbed in the film that he has forgotten that it is only pretence," or that he has "temporarily forgotten reality." For the spectator enjoys both the story and the good acting at one and the same time. Nor has he forgotten reality—otherwise he would rush to the aid of the threatened hero or shoot the villain on the screen as Mexican audiences are reported occasionally to do. What happens is that the field of illusion becomes superimposed on that of reality, and the two remain simultaneously present in consciousness. Sympathetic magic and the dynamics of participation are older and more powerful patterns of the mind than logical discrimination, a fact which becomes manifest each time the thin crust of rational thought is broken by strong emotion.

We have taken an apparent short cut from primitive magic to the cinema, but in fact the development is continuous: the modern stage and screen are direct linear descendants of the former. Dramatic Art originates with ritual ceremonies—dances, songs, and mime—which enact a certain past or desired future event: rain, a good harvest, good hunting, and so forth. The gods, demons, ancestors, animals partaking in the event are impersonated with the help of masks, costumes, make-up, tattooings. The shaman who dances the part of the rain-god is regarded as *being* the rain-god and yet remain-

¹ Lévy-Bruhl, *How Natives Think* (London, 1926), p. 76.

ing the shaman at one and the same time—his trance bisociates the divine and the earthly fields.

The verb “to be” (which moreover is non-existent in most of the languages of undeveloped peoples) has not here the ordinary copulative sense it bears in our languages. It signifies something different and something more. It encompasses both the collective representation and the collective consciousness in a participation that is actually lived, in a kind of symbiosis effected by identity of essence.²

Gradually, with the rise of the great ancient civilizations, the demons, spirits and totem animals are transformed into gods of human shape, demigods, and legendary heroes. From the stag dances of the Huichol Indians or the serpent dances of the Zuni, there is only one step to the goat dance and the song of the primitive Achaeans, in which the Greek drama originated. “Tragedy” means literally “goat-song” from *tragos* he-goat + *oide* song, and originates in the ceremonial worship of Dionysius, in which the performers were disguised as satyrs by means of goatskin costumes. Out of the related ritual worship of Dionysius, Bacchus, Apollo, and Demeter sprang the beginnings of the Greek drama. Indian drama has a similar religious origin; Etruscan drama derives from funeral rites; the modern European drama originated in the tenth century with the Mystery plays performed on the occasion of the main Church festivals. But though the drama gradually loosened and finally reversed its ties with religion, the emotional function of dramatic illusion remains essentially the same today as it was at the time of its origin: it lifts the spectator out of the narrow bonds of his segregated ego and makes him participate in events which are not on the plane of the Here and Now.

The transition from primitive ritual to modern drama is gradual and continuous, with myth and legend as the connecting links.

When the adventures, exploits, noble deeds, death and resurrection of a beneficent culture-hero are recounted in a myth, it is not the fact

² Lévy-Bruhl, *op. cit.*, p. 91.

of his having given his tribe the idea of making a fire or of cultivating meales that primarily appeals to the listeners. It is here, as in the biblical narrative, the participation of the social group in its own past, it is the feeling that the group is, as it were, actually living in that epoch, that there is a kind of mystic communion with that which has made it what it is.³

Sacred books of a cosmogenic and ritual nature are, together with war songs and the recital of the deeds of legendary semidivine heroes, the earliest monuments of literature, regardless of race; their main theme is man's communion with the universe and the divine.

The recitation of the Homeric poems on the Panathanaea corresponds to the recitation elsewhere of the sacred texts in the temple; the statement of Phemios (*Odyssey* XXII, 347) that a god inspired his soul with all the varied ways of song expresses the ordinary belief of early historical times.⁴

When the contemporary reader of a novel falls in love with the heroine who only exists as printer's ink on paper, when the school-boy becomes transformed in his imagination into Buffalo Bill who only exists as a shadow on the screen, they both experience the same illusion and go through the same emotive process as the primitive who believes that the carved figure *is* the rain-god, as the Catholic who believes that the Host *is* the body of Christ. The value of illusion in art is that it enables modern man to recapture the lost faculty of self-transcendence, of integrative participation which, though thwarted, remains one of his basic needs. For

the need of participation remains something more imperious and intense, even among people like ourselves, than the thirst for knowledge and the desire for conformity with the claims of reason. It lies deeper in us and its source is more remote. During the long prehistoric ages, when the claims of reason were scarcely realised or even perceived, it was no doubt all-powerful in all human aggregates. Even to-day the mental activity which, by virtue of an intimate participation, possesses

³ Lévy-Bruhl, *op. cit.*, pp. 340 f.

⁴ *Encyclopædia Britannica*, 13th ed., article on "Literature."

its object, gives it life and lives through it . . . finds entire satisfaction in this possession.⁵

We are thus able to trace the origins of the bisociative process which creates illusion back to the origins of civilization itself, both in respect of its cognitive duality and emotional dynamics. For, as regards the former "it is of the very essence of participation that all idea of duality is effaced, and that in spite of the law of contradiction the subject is at the same time himself and the being in whom he participates."⁶ And as regards the latter, we find that Art, derived from worship, remains the most important vehicle of self-transcendence, the main link between the individual and the absolute, once worship has become crystallized in dogma.

⁵ Lévy-Bruhl, *op. cit.*, p. 385.

⁶ *Ibid.*, p. 384.

XXII

The Technique of Illusion: Originality, Relevance, and Economy

SO FAR we have spoken only of the intellectual geometry and emotional value of artistic illusion. It remains to discuss the technique of creating it. We found, in discussing comic art, three main criteria of the effectiveness of a narrative: the *originality* of the bisociation; the *relevance* of the narrative to its theme, and its *economy* (or implicitness)—all of which aim at inducing the audience to relive the artist's creative process. We do not pretend that these cover all aspects of artistic technique, but it will be seen that the main criteria of literature and art can be conveniently grouped under these three headings.

We said that in order to make his audience share his experience, the artist has to devise a set of substitute stimuli to replace the original stimuli of his experience. The primary aim of these substitute stimuli is to give the audience the illusion that the experience to be shared is occurring Here and Now. Obviously these substitute stimuli cannot be an exact imitation of the original ones. The space on the painter's canvas is smaller than the space of the original landscape, and his pigment is different from the original colours; the sculptor's stone has not the plasticity of human flesh, and the writer's ink cannot, alas, exhale the smell of a rose. *The nature of the medium always excludes direct imitation.* Some aspects of the original experience cannot be reproduced at all; others only by gross oversimplification; others only by indirect allusion in the hope that the consumer's associations will complete the hint; and

certain aspects can only be reproduced at the price of sacrificing others. Unable to reproduce the whole of his experience, the artist at each step is forced to make a choice, conscious or unconscious, of those aspects of his experience which seem to him the *relevant ones*. This selection of aspects which the artist regards as relevant, and the discarding of those which he regards as irrelevant, is a highly subjective process, and determines to a large extent what one calls his "style."

Now each period and pattern of culture has its own accepted conventions as to what aspects of experience should be regarded as relevant. The extent to which an artist's individual views on relevance differ from the norm is a measure of his *originality*.

Thirdly, the artist must compel his audience to a re-creative effort. He can only provide the stimuli; the response must be contributed by the audience. Hence the narrative must be so constructed that it stimulates the receiver of the message to exert his imagination and work up his own emotions. Its steppingstones must be spaced just far enough apart to compel him to concentrate all his attention on the course to be followed; on a smooth and even pavement the pedestrian's attention flags. In other words, the message to be conveyed, the experience to be shared, must be *implicit* in the stimuli in order to whet the receiver's emotional appetite, instead of being forced down his throat. This implicitness is the essence of *economy* in all the arts—which, of course, need not express itself in (quantitative) brevity. It has been said that "Art consists in leaving out"; what has to be left out is, first, that which the artist regards as irrelevant, and, secondly, that which he regards as "obvious"—in other words, those elements which the receiver can and should supply by exerting his imagination and feeling. The following example will illustrate how these three criteria—originality, relevance, and economy—may be applied to the technique of creating dramatic illusion.

NATURALISM AND STYLIZATION

One of the great difficulties of writers at all times has been the communication of the mute, inner experiences of the characters

in the tale. For the teller of the tale it is easy to know what goes on in the minds of his characters, since these characters only exist in his own mind. But the communication of such projected mental events demands the creation of an illusion within the illusion, which threatens to defeat its own aim. The monologue is a headache for the dramatist and the novelist alike. In the older forms of drama the strange habit of the personae of talking aloud to themselves was an accepted convention, so that its strangeness was no longer noticed—just as it is an accepted convention in Egyptian painting that faces appear in profile with eyes set *en face*, or that on the screen the world is two-dimensional and grey.

As the stage became increasingly naturalistic, monologues and asides were abandoned for the sake of verisimilitude and smoothness of illusion. This affected the development of drama in two ways. On the one hand, there resulted a gain in economy: an actor's silence may imply more, and convey a stronger emotion, than his thinking aloud; and it demanded a greater creative effort on the part of the audience to relive the hero's emotions when they were given implicitly through characterization, than when they were given explicitly in yards of monologue in verse, as in the Restoration drama or Hugo's *Hernani*. On the other hand, the monologues in *Electra*, *Hamlet*, or *Faust*, are essential parts of the play, and their sacrifice would not lead to a gain in economy but to an impoverishment of the experience shared. For in the artist's experience the persons of his imagination do think and feel aloud, that is, audibly to him; and what a character thinks to himself is on a different, more intimate, and at the same time more universal plane, in short is often more relevant than what he says to others. The great monologues in *Hamlet* and *Faust* could not be communicated in dialogue without violating the laws of the mind. Naturalistic drama thus had to sacrifice relevant parts of the author's experience and narrow down the range of his communication—or else use the crutches of the type of dialogue which is in fact a monologue addressed to a dummy. Such devices, smuggled in under the guise of realism, are often more damaging to art than the overt use of

more primitive methods of creating illusion, such as masks, monologue, and chorus. The banning of the monologue may turn out to be one of the major causes of the steady decline of the drama and the almost complete extinction of the tragedy.

We thus see that the tendency towards naturalism, towards techniques of smoother illusion, may lead to a loss in depth and relevance of the experience communicated—a development particularly in evidence in the history of the visual arts, as, for instance, in the decline of Egyptian sculpture under the influence of Hellenistic realism and of Florentine painting after Raphael. A similar dilemma is that created by the conflicting claims of economy and relevance in fiction. Hemingway, the master of the technique of “leaving out,” of concentrated economy and implicitness, narrows down the range of literary communication to certain basic emotional experiences, conveyed with unsurpassed intensity, but at the price of a deliberate sacrifice in intellectual breadth and depth. At the opposite extreme, Proust surveys what is or may be relevant to the experience communicated with a meticulous pedantry, throwing economy to the winds.¹

RELEVANCE AND CONVENTION

The artist has to balance not only the conflicting claims of relevance and economy, but also those of the different relevant aspects of the experience to be communicated. Theoretically, the range of the choice before him is enormous; in fact it is narrowed down for

¹ Joyce, who is so often bracketed with Proust, employs in fact a diametrically opposed technique. While equally obsessed with collecting every microscopic grain that has internal relevance for his characters, he is never explicit as Proust is, but on the contrary carries implicitness to its furthest limits. Every sentence in Bloom's, and almost every word in Annalivia's monologues are overcharged with implications, so that the re-creative effort forced upon the reader amounts to the deciphering of a mile-long row of hieroglyphs. The steppingstones of Proust's narrative are a mosaic of microscopic crystals fitted together with infinite pain into a footpath so smooth that the reader may amble along it in his sleep; while Joyce's narrative is a marathon race with hurdles at each step, which only intellectual athletes of superhuman staying powers can hope to complete. Judged by the criteria of originality, relevance, and economy, Joyce errs on the side of the too much; he would be the perfect writer if the perfect reader existed.

him by the conventions of his age and school, so that only a relatively small margin of freedom remains. For conventions of artistic technique are not merely imposed on the artist by the pressure of the social environment, by the requirements of the market and similar external factors; they permeate his whole conscious and unconscious personality, influence the pattern of his vision, determine which aspects and relations of experience are selected as relevant, and which others remain unnoticed like the ticking of a clock. For centuries painters did not notice the colour of shadows nor the fluidity of contours in hazy air; until the discoveries of the Impressionistic school these were visual equivalents of the silent clock, as perspective was before Ucello. If we added up those aspects of life which literature has neglected at one period or another, they would cover practically the whole range of human experience; and even today the silent bands in the spectrum are considerably bigger in range than the articulate ones.

While conventionalized perception is deaf and blind to certain aspects of reality according to period, it naturally overemphasizes those aspects which are regarded as relevant, so that each period has its own exaggerations or conventional stylizations. Egyptian sculpture, Greek drama, Byzantine painting are obvious examples. Less obvious are those stylizations by which we ourselves are still unconsciously influenced. The overemphasis on contour in classical painting is still so much part of our visual conditioning that we do not realize the impossibility of seeing foreground figure and background landscape in equally sharp focus. In fact, the distinctness of the landscape behind the Gioconda constitutes a breach of natural law as obvious as the absence of shadows in Chinese painting, or the absence of the sexual motif in Victorian fiction.

SATURATION AND THE TREND TOWARDS IMPLICITNESS

As conventions crystallize, the bisociative process loses its emotional dynamism. The audience becomes conditioned to accept, without re-creative effort, one particular set of relevant stimuli as

representing the thing or process for which they stand, and the particular type of illusion conveyed in the conventional manner becomes smooth and automatic. The "consumer" reads the conventional novel, looks at the conventional picture, and watches the conventional proceedings on the stage at his ease; there is no need for him to strain his imagination. People prefer the conventional to the unconventional precisely because its acceptance requires no creative effort. Art then becomes a pastime and loses its impact, its appeal to self-transcendence, its integrative effect. The artist, in growing frustration, senses that the accepted technique has become stale and insufficient for him to express himself and to make others share his experience. Of course the technique itself—that is, the conventional set of symbols or substitute stimuli—cannot become "stale"; blank verse has today the same intrinsic qualities as it had three centuries ago. What the artist really suffers from is his inability to achieve an emotional impact on his audience because it has gradually become immunized against the effect of that particular set of stimuli. Bisociative dynamism has been degraded to associative automatism.

The development of art could be written in terms of the artist's struggle to overcome this emotional deadlock, the gradual saturation which any particular technique produces after a while in the audience. One continuous trend in modern literature is the effort to maintain the audience's re-creative tension by ever greater economy or condensation. Metaphors which had a fresh bisociative effect when first used, become hackneyed clichés after a while. Situations and patterns of human relations which were new in fiction a century ago have become so familiar through variational repetition that their development can now be left almost entirely to the reader's imagination; their explicit elaboration has to be replaced by implicit allusion. Modern prose has to accelerate its pace not because trains run faster than mailcoaches, but because thought trains run faster today than a century ago on tracks beaten smooth by popular psychology, fiction, and films. For the same reason modern poetry has become more and more condensed, implicit, allusive, and elusive.

The poet no longer cranks up the reader's imaginative motor; he pushes the button of the associative self-starter and leaves the rest to the batteries.

The clearest expression of this tendency was given by Mallarmé at the end of the last century:²

Je pense qu'il faut qu'il n'y ait qu'allusion. La contemplation des objets, l'image s'envolant des rêveries suscitées par eux, sont le chant: les Parnassiens,³ eux, prennent la chose entièrement et la montrent; par là ils manquent de mystère; ils retirent aux esprits *cette joie délicieuse de croire qu'ils créent*. Nommer un objet, c'est supprimer les trois quarts de la jouissance du poème, qui est fait du bonheur de deviner peu à peu: le suggérer, voilà le rêve. C'est le parfait usage de ce mystère qui constitue le symbole: évoquer petit à petit un objet pour montrer un état d'âme, ou, inversement, choisir un objet et en dégager un état d'âme, par une série de déchiffrements.

IMPLICITNESS AND OBSCURITY

When implicitness is pushed too far, obscurity results. Joyce's later prose, Eliot's and Auden's poetry, Picasso's painting are obvious examples. This obscurity may be only a passing one, a mere timelag between the artist's and the public's maturity; or it may be a permanent one, with its source in some peculiarity of the artist's mind (as with much of the poetry of Nietzsche and Blake); and, finally, it may be an artificial stunt, the dressing-up of commonplace experience in pretentious fustian. To decide which of these alternatives apply to a given "difficult" work of art is a delicate task under the distorting close-up conditions of contemporaneity. The history of literary and art criticism is a series of almost unbelievable misjudgments and blunders—the more unbelievable since one would expect critics to be endowed with enough critical sense to avoid the pits into which their forerunners have fallen. And yet even giants like Tolstoy tumble into them when they transfer their minds from the creative to the critical plane. Here, as an example, is Tolstoy's attitude to the French symbolists:

² *Enquête sur l'évolution littéraire* (my italics).

³ Sully Prudhomme, Heredia, Leconte de Lisle, etc.

The productions of another celebrity, Verlaine, are not less affected and unintelligible [than Baudelaire's]. . . . I must pause to note the amazing celebrity of these two versifiers, Baudelaire and Verlaine, who are now accepted as being great poets. How the French . . . could attribute such importance to these two versifiers who were far from skilful in form and most contemptible and commonplace in subject-matter, is to me incomprehensible.⁴

And after quoting from Verlaine's *Ariettes Oubliées*:

Dans l'interminable
Ennui de la plaine
La neige incertaine
Luit comme du sable.
Le ciel est de cuivre,
Sans lueur aucune.
On croirait voir vivre
Et mourir la lune—

Tolstoy exclaims like a petulant philistine: "How does the moon seem to live and die in a copper heaven? And how can snow shine like sand? The whole thing is not merely unintelligible, but . . ." and so forth.

How far condensation, implicitness, and allusion can be carried is an open question. Obviously the further they are carried, the smaller is the public capable of sharing the artist's experience. Joyce is the ideal writer for an omniscient reader, but it is doubtful whether at the present moment more than a dozen readers exist in the whole world who possess the philological, linguistic, mythological, and local (Dublin) knowledge required to decipher *Finnegans Wake*. Eliot's *The Waste Land* is a less extreme example—it merely takes for granted an intimate knowledge of the *Purgatorio*, *The Golden Bough*, Ovid, J. L. Weston's *From Ritual to Romance*, et cetera, and is obligingly annotated with references. But the same objection could be raised against Dante, Donne, Goethe, Swift, and many others, whose work abounds in obscure allusions to persons

⁴ *What Is Art? Works of Leo Tolstoy* (Oxford, 1929), Vol. 18, pp. 157 ff.

and books which are forgotten today, and were only known to a select élite of their own time. Tolstoy's doctrine that a work of art should be accessible to everybody is a noble wish which has never been realized at any time in any branch of the arts. At its origins, art was almost entirely esoteric: the significance of ritual carvings, masks, dances, and incantations was shrouded in mystery and only accessible to the initiated. If it were to become completely democratic, it would have to adapt itself to the lowest common denominator of contemporary taste—the sugary colour print, the catchy melody, the sentimental romance. If, on the other hand, it became completely esoteric, it would lose touch with the people.

The solution of this dilemma is not to be found in compromise. The problem is rather in the nature of the *maxima-minima* problems with two variables in mathematics: for example, to provide a maximum of heat with a minimum of fuel, or to construct a bridge of maximum supporting capacity with a minimum of material. In working out his individual solution, it is by and large preferable that the artist should err on the side of overestimating the level of understanding of his contemporaries rather than that he should fall into the opposite error. For the first type of misjudgment will be corrected in time by the steady maturing of popular taste; while a deliberate lowering of the artist's level for allegedly "democratic" reasons slows down this process of maturation, sanctions vulgarity and is therefore, in fact, reactionary and regressive.

THE REVIVAL OF LOST TECHNIQUES

We saw in the previous section how the saturation of the public with conventional techniques leads to periodic deadlocks in all branches of art. One method of avoiding such deadlocks is expressed in the trend towards condensation and implicitness. Another way out is a sudden shift of emphasis to hitherto overlooked aspects of reality. But historically of equal importance are the periodic rediscoveries of aspects of reality which had been forgotten and lost; in both cases the result is a revaluation of values, that is, a new formulation of what is relevant. The discovery of new values alternates

with the revival of old ones, and keeps Art from petrification. Obvious examples of such revivals in the visual arts are the discovery of Greek statuary in the fourteenth century, and the discovery of negro sculpture in the twentieth. In literature, on the average every century produces one classical or romantic revival. One recent example of a misfired classical revival was the attempt of left-wing *avant-garde* theatres in the 1930's to do away with stage properties, to revive chorus, monologues, and masks, and even to break down the partition between spectators and stage by distributing some of the actors among the audience. The intentions behind this movement were confused and self-contradictory. Partly they derived from a misunderstanding of the emotional function of Art; and, connected with this, from a naïve scorning of illusion as an inferior and cheap technique, a diversion from social reality, a dangerous drug and a sign of *bourgeois* escapism. Here we are only concerned with the misconception arising from the ambiguous use of the term "illusion." "Illusion" in the context "drama" means that the audience is made to believe in the reality of the events on the stage; while illusion in the context "politics" might mean, for example, that the social problem can be solved by all pretty secretaries marrying their bosses. Obviously the two meanings have to be kept separate, and obviously dramatic illusion may serve any political purpose, "bourgeois" or "revolutionary"—as the history of revolutionary art from the *Marriage of Figaro* to *Battleship Potemkin* and Picasso's *Guernica* amply proves.

But if we discard this obvious fallacy, there still remains a general contemporary trend of revolt against artistic illusion itself, that is, against the representative, imitative nature of artistic communication. *Avant-garde* drama is merely one example of this trend, which is most pronounced in the visual arts. Historically this is a reaction against the tendency of the last three centuries to make illusion more smooth and "realistic," even at the price of sacrificing relevant aspects of experienced reality, and of lulling the consumer to sleep by saving him all re-creative effort. The Victorian audience, sated with social stability, security, and complacency, was not partial to

creative effort. It was only prepared to take a lukewarm interest in the artist's experience and then only if that experience was not disturbing and was communicated in a smooth and decorous manner. Sooner or later a reaction was inevitable; nor is it surprising that it carried a wistful element of "*épater le bourgeois*."

But it is a theoretical misconception to define this revolt as a revolt against representative illusion. It is a revolt against a conventionally smooth and jellified method of representation. It does not do away with illusion, as some theoreticians think, but replaces one worn-out set of stimuli by a fresh set, and one method of creating illusion by another. Modern painting creates illusion, *inter alia*, by shifting the emphasis onto surfaces as wholes—an aspect of visual experience which had for a long time been neglected in favour of contour and detail. But unbroken surfaces, overlapping colours, cubic elements in the spatial perception of solids, the emphasis on characteristic asymmetries in the human face, the perception of the whole to the detriment of the detail and of "pure form" to the neglect of functional meaning, the distortion and rearrangement of the model according to the logic of the dream, the interference of the imagined with the perceived—all these and many other features of modern art, even at its most rugged and "abstract," do not signify the discarding of representative illusion as some theorists of art proclaim, but merely a shift in emphasis on, and a different selection of, what is considered relevant to the communication of reality—to wit, the reality of the artist's experience, which, like all experience, is a subjective one.

Similarly, the banishing of stage props and the revival of masks, monologue, chorus, and so forth in *avant-garde* drama, does not mean the end of illusion, but merely a falling back on earlier devices for creating it. According to Aristotle, tragedy is "an imitation of action," and according to Plato it is "an imitation of the noblest form of life." Greek tragedy thus definitely aimed at imitative illusion. The cothurnus was a simple stage prop which served both to indicate the "loftiness" of the character impersonated and to make him better visible on the open-air stage. Similarly, the mask

served the double purpose of better visibility and of magical impersonation. The Greek theatregoer in the fifth century B.C. was conditioned to this particular method of creating illusion; the conventions and paraphernalia of the Greek stage were taken as much for granted by him, and interfered as little with his enjoyment, as, for instance, the captions which replaced the actors' voices in the silent film interfered with the enjoyment of earlier cinemagoers.

Such revivals of primitive or "naïve" techniques of creating illusion may serve obscurantism or snobbery—with which we are not concerned here; their real aim is to make once more available relevant aspects of experience which had been sacrificed for the sake of realistic smoothness.

Such revivals, we said, alternate with new discoveries—perspective, anatomy, oil painting, the colour of shadows, the revolving stage, socialism, psychoanalysis, the talkie, broadcasting, relativity. In this list of examples, discoveries affecting the technique of communication are mixed with those relating to its content; in fact, it is impossible to draw a line between the two. For every technical improvement in the communication of experience affects the mode of experiencing itself. The laws of perspectivic geometry make the painter *see* differently; the imagination of the writer of broadcast plays functions in auditory terms. And vice versa, each newly discovered aspect of reality requires a new technique to express it.

THE ANTIQUARIAN FALLACY

In the realm of literature, relevance can only be achieved by discarding conventions of prejudice and habit which screen vital bands in the human spectrum, and by taking in new extensions of the visible range offered by psychology, the social sciences, the evolution of language. But these new aspects of reality cannot be simply tacked on to the communication; they have to be assimilated until they become an integral part of the author's way of experiencing, and implicit in all his experiences. This is a slow and gradual process; the regurgitation of undigested gobbets of learning leads to artistic disaster. In the average Victorian novel almost the

whole range of sex was represented by a gap in the spectrum. But though today some of its aspects are admitted, it would be naïve to think that these cover the whole range of sexual experience. As for the full implications of Freud, it will probably take another half century until literature has fully assimilated them.

Some critics deny the necessity for the artist to take in new extensions of the spectrum. They delight in statements like "Stendhal knew all that before Freud" or "Tolstoy would not have gained much by reading Marx." One might as well say that it makes no difference to the artist whether he knows that the earth is a planet or believes it to be a disc supported by Atlas, and the centre of the universe. A little introspection should make it clear that part of our enjoyment in reading the classics—even such recent ones as the works of Stendhal and Tolstoy—is provided by a half-consciously patronizing attitude, as when we listen to the talk of precocious children. "How clever of them to know that at their age." We do not judge the classics at their face value, but at their period value. Our attitude to them is a mixture of admiration and mild condescension.

In this context it is further necessary to distinguish between emotions derived from this "antiquarian" attitude, and the aesthetic experience itself. The confounding of these two separate factors of experience leads to much confusion in critical judgment—over-estimation of dead authors, belittling of the living, an indiscriminating reverence for what is old. The sources of this antiquarian thrill are the experience of mystery and exoticism, a consciousness of the relativity of fashions and values, and, above all, a feeling of participation in the past of the race, of continuity and identity: "For all that happens began in the past and presses hard upon the future" (Eliot, *The Family Reunion*). In this sense it is a self-transcending experience of high integrative value, but one which has to be treated as something different from pure aesthetic appreciation.

XXIII

Metaphor, Poetic Imagery, and Archetypes

METAPHOR, simile and poetic imagery, which we shall treat as one category, are bisociative processes of great importance in literature from its earliest beginnings. We saw that the juxtaposition of two trains of thought moving in two different fields may, according to the emotional charge, become a comic comparison, a neutral analogy, or a poetic image. If one of the thought trains is given in a compressed, implicit form, so that the consumer has to expand it or fill in the gaps, then we have, according to the emotional charge, witticism, neutral riddle, or metaphor.

The effectiveness of the metaphor and imagery depends again on (1) originality, (2) implicitness and (3) relevance.

The first needs no further comment: each new image becomes stale by repetition, and, once it is established as a cliché, it is no longer even perceived as metaphorical (for example, a broken heart, the newborn day), and thus loses its bisociative dynamism.

Implicitness or condensation plays an important part in the technique of poetic imagery. If the metaphor or image is too explicit, it leaves the consumer no opportunity of exerting his imagination by expanding the condensed hint or filling in the gap, and in the absence of re-creative effort no emotional processes take place. The German word for poetry is *Dichtung*, that is "compression," and Freud was even led to believe that compression is the essence of poetry. Compare also the passage by Mallarmé quoted in the previous chapter:

There should be nothing but allusions. . . . The Parnassiens who make a complete demonstration of the object thereby lack mystery; they deprive the [reader's] mind of the delicious joy of imagining that it creates. . . . The enjoyment of the poem . . . consists in the happiness of guessing little by little: suggesting [instead of naming] makes the dream.

A too explicit and detailed exposition of the bisociated image has the further disadvantage of limiting the validity of the comparison to the author's subjective experience. "The vision of Christ that thou doest see—is my vision's greatest enemy. Thine has a great hook nose like thine—mine has a snub nose like to mine" (Blake).

The effectiveness of the comparison further depends on what aspect of the experience is singled out for comparison with some other experience, that is, on the *relevance* of this chosen aspect to the experience as a whole. A crinoline and a sack of potatoes do not provide an aesthetically satisfactory comparison, because the starch content which they have in common is not relevant in ordinary association to either of them. Such "neglected-aspect" bisociations lend themselves to treatment as riddles or jokes, but not ordinarily to poetic imagery. The reason for this is that the emotional charge cannot be transferred through the irrelevant link—its aggressive component will be exploded, its integrative component frustrated. But under special conditions artistic effects can be achieved by deliberate emphasis on apparently irrelevant aspects of experience—that is, trivial observations in moments of great dramatic tension, like the Tchekhovian fly crawling over a piece of sugar during Natasha's announcement of her impending suicide, Bloom's preoccupation with the kidney in his pocket during the funeral, trivialities as symbols for repressed contents, and so forth. The influence of psychoanalytic discoveries on literature thus provides a striking example of the "shift of relevance" discussed in the previous chapter.

After this short summary of the technique of the metaphor, we shall investigate in more detail the sources of aesthetic value in the poetic image.

INTRINSIC VALUE OF THE METAPHOR; SYNAESTHESIS

Metaphor and illusion are both bisociative experiences resulting from the simultaneous presence of two associative contexts in the mind. Both metaphor and illusion have a certain aesthetic value *per se*, but their principal value is dependent on the nature of the two fields.

The value of illusion as such consists, as we saw, in the transfer of awareness from self-seeking preoccupations to a field detached and distant from the ego's appetites, in the opportunity which it provides for the sympathetic projection of emotions, for identification with other selves. Even if aggression and hatred are involved, they serve unselfishly the interests of others, and are harnessed to the service of love and admiration. But this intrinsic value of illusion is crude and almost negligible compared to that part of the aesthetic experience which is derived from the specific pattern of the plane to which attention has been transferred—that is, the quality of the play which the illusion presents, or of the artist's experience which his picture serves to convey.

Similarly, the metaphor or comparison has in itself intrinsic value, though artistically this is of little importance. It consists simply in the quantitative enrichment of any experience by its being compared to something else with a different associative field. If the comparison is relevant in any respect whatever, the second or auxiliary thought train will shed additional light on the first; from a purely quantitative point of view, there will be more points of attachment for interest and emotion, more "departments" of the mind will be engaged in reliving the experience.

An obvious example of this are metaphorical cross-references from one of the senses to another, a device frequently employed in modern prose: a "warm" colour, a "sweet" voice, a "cold" expression, a "sharp" light, a "quiet" design, "blind lips" (Swinburne), "blind hands" (Blake), and so forth. Taste, smell, vision, hearing, touch exchange their specific adjectives, deputize for and fuse with each other, so that "Light is heard as music, music seen as light"

(Swinburne). It is obvious that such "synaesthetic" metaphors greatly facilitate the sharing by the reader of the teller's vision, as more of his sensory fields are mobilized to participate in the experience, which thus become multidimensional, fuller and richer, as it were.

"ETERNITY LOOKING THROUGH TIME"

Synaesthetic cross-references are the most obvious example of the intrinsic value of the metaphor for the quantitative enrichment of experience, regardless of the qualitative value of the fields involved. But, as we said, the latter has a much greater share in determining the aesthetic effect of the metaphor in poetry and prose.

The emotional "value" of an operative field depends on its capacity for evoking and satisfying integrative emotions. Obviously that field will rank highest in the hierarchy which directs the mind towards the goal of all integrative impulses and the source of all aesthetic experience, the oceanic feeling.

Plato's allegory of the cave, Donne's "Immensity cloistered in thy dear womb," Homer's wine-dark sea are instances of the metaphorical intersection of the plane of the absolute and eternal with the plane of the trivial and familiar. When such bisociations occur, the remote absolute suddenly becomes humanized and familiarized, drawn within the personal orbit, while simultaneously the trivial object of everyday experience becomes ennobled, surrounded with a halo, as it were. This intersection of the trivial narrative of life with the plane of the tragic and absolute, which in the ordinary citizen's curriculum occurs only once or twice in the solemnly catastrophic moments of great danger, illness or love, is of the very essence of true Art. "The infinite is made to blend itself with the finite; to stand visible, as it were, attainable there. Of this sort are all true works of art; in this we discern eternity looking through time" (Carlyle).

This dual experience cannot be attained by the mental processes of associative habit. Its essence is in its duality, in the fusing

of the two worlds. Without being tied down by this bisociative bond to some trivial object in the tangible world of the finite, the absolute is too inhuman and elusive—indeed boring. “Immensities” means nothing to us until it becomes “cloistered in thy dear womb”; and the infinite ocean is humanized by its “colour dark as wine.” The absolute only becomes emotionally effective when dovetailed into the trivial.

We defined the *function* of Art as the sharing of mental experiences; it is a mode of communion which overcomes the separation of individual minds, the medium through which inner worlds communicate. The aesthetic *value* of a work of Art we may be tempted to measure by the closeness of the experience which it communicates to the field of the absolute and eternal, the tragic substratum of existence.

Three reservations immediately impose themselves. The first is that Art cannot always go “all out” for the absolute fundamentals or it would become overbearing and monotonous; the second is that these fundamentals need not necessarily manifest themselves in a tragic shape; the third is the vagueness of the term “absolute.”

THE FIELD OF THE “ABSOLUTE”

Before we go further, it will be necessary to give a closer description of what is meant by the “field of the absolute.” The passage from Carlyle cited above, and similar statements about art which make use of such terms as the “infinite,” the “eternal,” the “cosmic,” the “universal,” and so forth, convey an associative context which is vivid but extremely vague. To define the absolute as a mental experience is impossible, because it is not mentally represented as one sharply outlined image or symbol, but as a spacious associative field of which the above terms (the infinite, the ultimate, the all-one, and so forth) are members; a field in which thought can travel from one nearly synonymous member to the other while still remaining attuned to the same operator. In the geometry of the mind the absolute, like all similar concepts, is not a point, but a plane. But, while we cannot define the experience

of the absolute, we must at least attempt to determine the selective operator of its field. This can be done in two ways.

First, we may say that the field of the absolute consists of all such notions as do not lend themselves to further mental integration. This is a necessarily loose description, but it will serve the purpose of pointing to the type of experience under discussion. Absolutes cannot be reduced to more general terms of experience; they do not enter into logical relations with members of other fields; they disrupt the habitual kind of mental operations; metaphorically speaking, they behave like the mathematical entities zero and infinite. Those arithmetical teasers by which one can prove that four equals five by smuggling zero or infinite into the operation, are perfect analogies of the scholastic proofs for the immortality of the soul or the personal nature of God. We said that the field of the absolute consists of notions which do not lend themselves to further mental integration. The infinity of space may be mathematically treated as a multidimensional continuum, but in ordinary experience it is just the infinite, and there the matter ends. It is an irreducible experience so far as comprehension is concerned, while its emotional content expands into the oceanic feeling. And the same applies to the related notions of eternity in time, the universe, and so forth; they shade into each other as members of one class of irreducible "ultimates" or "absolute notions," and all discharge into the same emotive pool, like rivers flowing into the sea.

ARCHETYPES AND THE ABSOLUTE

A second and more indirect approach to the field of the absolute is the genetic approach. Jung's archetypes, "the psychic residua of numberless experiences of the same type" encountered by the subject's ancestors in the history of the race and implanted in his "collective unconscious," have a relevant connection to our theme. Whenever archetypal psychic patterns are touched upon, the emotional response is much stronger than is warranted by the stimulus at its face value; we respond like a tuning fork to a pure tone. These experiences, to quote Gilbert Murray, are "deeply implanted

in the memory of the race, stamped, as it were, upon our psychical organism. . . . There is that within us which leaps at the sight of them, a cry of the blood which tells us we have known them always."¹

Archetypal experiences crystallize in primitive patterns of culture into symbols, myths, and legends. Whether these symbolical crystallizations are inherited in the collective unconscious as latent but *concrete images*—as the Jungians seem to assume—is for various reasons extremely doubtful. But this need not concern us here; we are merely interested in the fact that certain typical experiences return again and again in the myths and symbols of races widely separated from each other in space and time. Examples of such archetypes or primordial experiences are: life, death, and rebirth; the periodicity and ordered regularity of events (days, seasons, tides); the polarity of the sexes and the secondary polarizations which it entails (logos as the masculine, intuition as the feminine principle, "mother earth" and "heavenly father," and so forth); the strife between generations and its counterpoint, the incest-motif; the inadequacy of the human condition (Jacob's struggle with the angel, Hercules, Prometheus, Faustus, et cetera); the dualisms of good and evil, paradise and hell; the conflict between human striving and fate, between free will and determinism. Further archetypal leitmotifs are the appeasement of destiny by sacrifice, the variations of ordeal and conversion (Joseph in the well, Buddha in the desert, Jonah in the whale, Jesus in the wilderness, Job's afflictions, et cetera); the conflicts between individual and community, and between two incompatible loyalties; the antinomies of the spirit and the flesh, of instinct and convention, and many others. These are typical experiences, which recur in ever changing variations and symbolizations and yet remain basically the same, because they are rooted in the very essence of the human condition, in the polarity of man's instinctual tendencies, in the pattern and limitations of the individual as an integrated whole and social part.

¹ Gilbert Murray, *Hamlet and Orestes*, quoted by M. Bodkin, *Archetypal Patterns in Poetry* (Oxford, 1934).

They are inescapable experiences of "suffering and delight that has happened countless times in our ancestral history and on the average follows ever the same course" (Jung)—that unvarying aspect of man of which it is true that "*plus ça change plus c'est la même chose.*"

If absolutes are boundaries of the mind beyond which thought cannot be carried, archetypes may be regarded as grooves of volition and behaviour which experience cannot escape. The two notions overlap; more precisely, the ideas of eternity, infinity, existence and nonexistence, universal law, and so on, may be regarded as abstract verbal symbols distilled from archetypal experiences, while the pictorial language of myth and dream are their concretized or illustrative symbols on a preverbal level. Not all archetypal experiences lend themselves to ideational abstraction, but all our ideas of absolutes or ultimates are probably derived from archetypal experience.

ARCHETYPES AND THE HIERARCHY OF AESTHETIC VALUES

Archetypes play an all-important part in literature, from Greek drama to modern poetry and fiction. They permeate both the whole and the part: the dramatic plot, and the imagery and symbolism employed in it. Poetic imagery, to which we now return, reaches its highest vibrational intensity, as it were, when it evokes an archetypal echo or draws on the field of the absolute. Donne's line, quoted on a previous page, does both: "Immensity" is an abstract, the womb one of the oldest concrete archetypal symbols. The same synthesis is found in almost every strophe of his *Divine Poems*:

Now thou art lifted up, draw mee to thee,
And at thy death giving such liberall dole,
Moyst, with one drop of thy blood, my dry soule.
—"Crucifying"

If death did not exist, said Schopenhauer, there would be no

philosophy.² If death did not exist, we may add, it is doubtful whether there would be Art. That does not mean that either philosophy or Art is exclusively, or even mainly, preoccupied with death; merely that the true work of art is always transparent to some dim outline of the fatal absolutes, of the archetypal image. It need not necessarily have a tragic shape, and it may be merely the indirect reflection of a reflection, the echo of an echo. But the metaphor or poetic image yields aesthetic value only if the two juxtaposed contexts form part of an *ascending hierarchy*; in other words, one of the two fields involved in the comparison must be nearer to the archetypal peak than the other and thus provide an integrative uplift—though it may still be far below the top. To get this important point clear, even at the risk of appearing pedantic, we may imagine the metaphor or image as represented by two different levels on a staircase. The steps need not be successive ones, and nothing is said about their distance from the top. The only requirement is that there should be a difference of level between them to provide an integrative gradient.

AN EXAMPLE OF "ARCHETYPAL RESONANCES"

To illustrate these somewhat theoretical considerations by an example, we choose at random these lines of Shelley's:

The pluméd insects swift and free,
Like golden boats on a sunny sea.

At first sight, the easy grace of the image seems to exclude all archetypes, absolutes and similar top-heavy words. Both halves of the comparison seem to have a purely sensory appeal of optic imagery, and neither of them seems to occupy a higher rank than the other in any hierarchy. But if we look closer, a difference emerges. The first line is purely visually descriptive and stimulates visual memory images. The second line is not; if we come to think

² Schopenhauer, *Über den Tod und sein Verhältnis zur Unzerstörbarkeit unseres Wesens an sich*.

of it, we have never seen *golden* boats, nor do boats on the sea, however sunny it is, ever give rise to the illusion of being gilded—not even in painting at its most impressionistic. And yet the image of the golden boats completely goes down with us and seems curiously familiar, although this familiarity cannot arise from visual memory. In fact, the sensation of familiarity derives not from the field of optical experience, but from that of mythological imagery. It is the gods, legendary kings, and princes who travel in golden boats; it is as difficult to imagine them traveling in vessels of any colour other than gold as it is difficult to imagine a bourgeois pleasure yacht with a gilded hull. The “golden boats on a sunny sea” evoke a faint, half-conscious suggestive echo of the fairy tale, of happy princes or Olympians on a pleasure cruise, of one of the oldest and most colourful archetypal patterns, that of Paradise. It is capable of many variations, both racial and individual. Shelley’s Paradise, as his Hades, was inseparably connected with the sea:

An isle under Ionian skies,
 Beautiful as a wreck of Paradise.
 —*Epipsychidion*

This motif of paradise as an island in the sea, or as a boat floating on it, returns again and again:

Other flowering isles must be
 In the sea of Life and Agony. . . .
 On some rock the wild wave wraps,
 With folded wings they waiting sit
 For my bark to pilot it. . . .
 We may live so happy there,
 That the Spirits of the Air,
 Envyng us, may even entice
 To our healing Paradise
 The polluting multitude.

—*Lines Written Among the
 Euganean Hills*

Or the well-known :

My soul is an enchanted boat,
Which, like a sleeping swan, doth float. . . .
And thine doth like an angel sit
Beside a helm conducting it.

—*Prometheus Unbound*

Or in the song of Ocean:

The loud deep calls me home even now to feed it,
With azure calm out of the emerald urns.

And the chaos of the watery Hades:

Unfathomable Sea! whose waves are years,
Ocean of Time, whose waters of deep woe
Are brackish with the salt of human tears!
Thou shoreless flood, which in thy ebb and flow
Claspest the limits of mortality,
And sick of prey, yet howling on for more,
Vomitest thy wrecks on its inhospitable shore.

—*Time*

And, finally, the last strophe of *Adonais*, written less than a year before he was drowned in his small sailing boat:

My spirit's bark is driven,
Far from the shore, far from the trembling throng
Whose sails were never to the tempest given. . . .
I am borne darkly, fearfully afar.

The instances could be multiplied to show the archetypal resonances of that apparently casual and spontaneous metaphor. Such tracing of the sources of poetic imagery could develop into a branch of aesthetic psychology more fruitful than the detective work of orthodox Freudians based predominantly on sexual clues. The excursions into Art of Jung himself are disappointing; a promising beginning has been made by Maud Bodkin's substantial study on *Archetypal Patterns in Poetry*.

INTELLECTUAL REDUCTION AND THE ARCHETYPE OF UNIVERSAL LAW

The integrative value of metaphor and imagery ranges, as we saw, over an ascending series from the mere quantitative enrichment of experience by sensory cross-references to the highest level of archetypal resonance. A systematic catalogue of the types of bisociation employed in poetic imagery would be tedious, but certain specific forms are worth a short discussion.

Some bisociative figures, employed both in poetry and prose, seem to appeal more to the intellect than to emotion, or to the intellect alone, and yet have aesthetic value.

And how dieth the wise man? as the fool.
—Ecclesiastes

Golden lads and girls all must,
As chimney-sweepers, come to dust.
—*Cymbeline*

When Adam dolve and Eve span,
Who was then the gentleman?
—JOHN BALL

The first two of these quotations are like coloured illustrations of the sober statement that all men must die; the third exemplifies the statement that all men are born equal. The bisociative effect is derived from the intersection of one field of vivid and particularized sensory imagery with a second field of abstract general law. The vividness of the effect is enhanced by marked compression; the implicitness of the third example makes it almost appear as a naïve kind of riddle. We further note the archetypal echoes evoked by Adam, Eve, the wise man, the fool, and the golden lads. But at present we are no longer concerned with these, but with the emotional appeal of what seems to be a purely intellectual process; namely, *the reduction of the particular instance* (the chimney-sweeper) *to the general law* (that all men must die).

Now such reductions of the particular to the general are usually regarded as purely logical operations; but in fact they give rise to the most powerful emotional release. For the (divine or natural) law as the general organizing and harmonizing principle of the universe is one of the most powerful archetypes of human experience. The epistemological enquiry into the nature of so-called "natural" laws does not interest us here; we are merely concerned with the psychological experience, with that experience of relief, reassurance, and protection which occurs whenever a particular disturbing phenomenon can be "explained" as deriving from universal law. This emotional process can best be understood through its opposite. The antipole of law is chaos: that is, complete unpredictability of events, absence of protection, exposure to the ferocious whims of gods or natural forces, panic and gnashing of teeth. The emergence of cosmos from chaos through the discovery of dependable laws, "the great morning of the world when first God dawned on chaos" (Shelley), is probably the most fundamental archetypal experience of man, both philogenetically and ontogenetically. Its echoes can be traced in every sphere of life: from the sudden smiling relief of the child when the unusual appearance which frightened it is related to more familiar phenomena and recognized as part of the general order of things, to the euphoria of the scientist who has solved his problem. So powerful is this archetype that even painful and grievous experiences become tempered with relief once they are reduced to a general law. To lose a relative by accident is more painful than to lose one through old age or incurable illness. The only effective consolation in the face of death is that "we must all die"—that is, that this particular experience is part of a general law. The only real consolation of a man walking to the electric chair would be the news that the rest of humanity was going to be simultaneously destroyed by a comet. Whether the supposed law to which the specific experience is reduced is based on faith, superstition, or an utterly false system, does not alter its comforting effect. The idea of "blind chance" deciding our fate is unbearable; the mind abhors gaps in the lawful order as nature abhors the vacuum.

This reduction of the uncanny and vexing to the orderly and familiar, the reduction of the rustling of trees in a dark forest to either the whisper of fairies or the vibrations of compressed air—both equally comforting—is the negative side of the emotional process: relief from fear and anxiety. But there is also a complementary, positive side to the process, which involves the self-transcending emotions. The myth of the Creation appeals not only to our abhorrence of chaos, but also to our admiring wonder at the cosmic order. Light is more than the absence of darkness, and law more than the absence of disorder. Kepler's passionate search for the mathematical laws which govern the movement of planets may have been partly activated by ambitious, self-assertive motives, but, as his biography shows, these were of relatively small importance compared to his overwhelming urge to capture "the numeric laws of the celestial harmony." In Kepler's eyes God was a mathematician, and mathematics a means to serve the divine principle. Referring to Ptolemy's laws of planetary movement, he writes:

Nature had revealed herself through interpreters separated by many centuries; it was the finger of God that allowed the same picture of the structure of the world to grow in the souls of two men who had given themselves up to the study of nature, though neither had influenced the other. But now, since eighteen months ago the first light dawned, since three moons the full day, and since a few days the sunshine of the most marvellous clarity—now nothing holds me back: now I may give in to this holy rapture.

As L. L. Whyte comments:

To the western mind this may appear as a fusion of religious enthusiasm and the exact scientist's passion for numerical discovery. But Kepler lived at the one moment in history when the religious and scientific passions could be identical. . . . At its root religion is an expression of man's search for unity; so also is science.³

The experience of "marvellous clarity" which enraptured Kepler, accompanies to a greater or lesser degree all reductions of phenom-

³ L. L. Whyte, *The Next Development in Man* (London, 1944).

ena to their primary, or apparently primary causes. It should be repeated that the emotional value of reducing an experience to a given system of reference is not affected by the system's objective validity, as long as the subject believes in it. If that is the case, then the "explanation" is always accompanied by an emotional catharsis, by the experience of something previously turgid becoming suddenly transparent to, and permeated by, the light of a divine law or "primary cause"; the experience of uniformity in apparent diversity. Once again we meet here the basic longing for universal oneness; the urge to reduce particular phenomena to general laws appears as a sublimated expression of the integrative instinct, and, when satisfied, gives rise to the oceanic feeling—to Kepler's rapture at the "harmony of the spheres."

THE "EARTHING" OF EMOTION

The emotional dynamics of this process of reducing the particular to the general may be compared to the "earthing" (or "grounding") of a wireless receiver or any electrically charged body. The tensions and vibrations in such a body can find no outlet as long as it is isolated, but once contact is established with the earth and its infinitely greater absorptive capacity, the tensions are drained into it, and a peaceful catharsis results. This is exactly what happens when in the metaphor or allegory a particular image is bisociated with the fields of an archetype or "ultimate law." The latter field, with its superior emotion-absorbing capacity, acts as "earth" to the former and thus facilitates catharsis. Therein lies the soothing and comforting effect of such images as that of the golden lads and girls who all must come to dust, for such is the law of nature; through them we can earth our personal predicament in the universal, biological law by an act of self-transcending acceptance. We said that Art teaches us to integrate; it teaches us to earth our particular miseries in the acceptance of the universe as a whole. When Rembrandt had the unheard-of audacity to paint the carcass of a flayed ox, he taught the spectators to see and accept behind the repulsive particular sight the eternal patterns of light, shadow, and colour.

Such emotional earthings occur whenever, in metaphor or simile, two levels in the hierarchy of emotional values intersect. The field on the higher level will act as earth towards the lower. "High" and "low" are defined by the field's relative capacity to facilitate the deployment of self-transcending impulses, and this capacity in its turn depends on the field's associative pattern: on the archetypal echoes of its members, and their reference to "ultimate laws."

XXIV

Sources of Poetic Inspiration

IN the course of the preceding section, we have discussed the effects of metaphor and imagery, not their creation. We said before that the creation of original metaphors and images is a variation of the eureka process: two fields are brought together which had never been connected before. In French, original images or similes are called *trouvailles* (finds).

An amusing illustration of the interrelation of metaphor and eureka process is the way Freud first struck upon the concept of the sublimation of instinct.

It happened while he was looking at a cartoon in a humorous periodical which showed the career of a girl in two subsequent stages. In the first she was herding a flock of young geese with a stick, in the second she was shown as a governess directing a group of young girls with her parasol. The girls in the second picture were arranged exactly in the same groups as the goslings in the first.¹

Obviously, the two cartoons which were instrumental to Freud's discovery of the concept of sublimation, might inversely serve as a metaphorical illustration of that concept, once it is given.

PARTICIPATION OF EXTRACONSCIOUS FIELDS IN DISCOVERY AND ART

As in the case of scientific discovery, in the poetic *trouvaille* the bringing together of the two trains of thought is frequently effected below the conscious level: in dreaming, daydreaming, trance-like

¹ Sachs, *Freud, Master and Friend* (London, 1946).

states, and what one might term "creative absent-mindedness." (Compare Lamartine's "I never think—my thoughts think for me," or Musset's: "One does not work—one listens," or Picasso's: "I do not seek—I find.") Biologists, physicists, and even pure scholars, like mathematicians, are equally apt to find the solutions of their problems in sleep and extraconscious processes. The common factor in these phenomena is an extraconscious selective operator which selects associative connections of a kind which to the conscious mind appear as spontaneous jumps. Such "intuitive" processes are comparable to a chain submerged in water with only the first and last link emerging on the surface. The only difference between scientific and artistic invention is in the nature of the unconscious selective operator. In the first case it is a sensed but un verbalized relation pattern, the substratum of many analogous experiences. Although the nature of the affinity can not as yet be consciously abstracted and named, it already functions in a groping and sometimes erratic manner as the selective agent of the nascent field. In the second case, the extraconscious field is usually of a more primitive, sensory, or affective nature. The original, and sometimes striking, character of artistic inspiration is due to the fact that in such extraconscious fields association proceeds according to "preferential attunements" which are inhibited in normal, wide-awake cortical thought. We saw (compare Part One, Chapter IV) that from the starting point of a given concept or image, association may proceed according to a great number of its selective attunements, such as affinities of sound or smell, or contiguity in time and space, and so forth. Among these many possible associations, rationally controlled thought admits only those which correspond to the specific attunement of the operative field that happens to be active at that time. All other attunements are either temporarily inhibited as irrelevant and distracting, or permanently inhibited, that is, repressed. The requirements of rational thinking are as a rule such that the most preferred associative attunements are those most frequently inhibited. Were it not so, we would spend most of our office hours in daydreaming.

Once, however, conscious concentration flags and the inhibited

attunements are released from control—whether in daydreaming, sleep, or trancelike states—other extraconscious operators begin to function. The great majority of the trains of thought which they produce are heuristically worthless; and even among the few which seem relevant to the reawakened mind, most turn out on closer scrutiny to be “false inspirations.” Both the poet and the scientist know by bitter experience how many of the apparently happy discoveries of intuition have to be rejected. The diver into the unconscious mostly returns to the surface with nothing but a handful of mud. It remains to be explained how it comes about that he does sometimes return with a pearl. The problem is that of the purposeful action of extraconscious fields. We shall approach it through one aspect of poetry, the rhyme.

RHYTHM AND SOUND ASSOCIATION

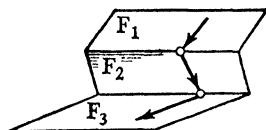
At first sight the rhyme appears as an artifice, an ornament to speech, but its roots are much deeper. Rhyme derives from rhythm,² and thus from one of the basic patterns of behaviour: the tendency to periodic repetition of internal processes, of movement, gesture, sound. We shall discuss rhythm in more detail in the next chapter; in our present context we merely note that pulsating, rhythmic periodicity is inherent in all organic life, and that rhythmic patterns in overt behaviour, like dance, incantation, metric recitation, pathological automatisms, and so forth, arise from the deepest phylogenetic layers of the personality.

Rhyme is a relatively late derivative of rhythm: repetitive patterns based on the length and stress of syllables developed into repetitive patterns of single consonants (alliteration) and single vowels (assonance), and finally of both—the rhyme. The process has some affinities with the development of primitive melody out of the unmodulated rhythmic beat of drums, gongs, and monochords: both are qualitative modulations replacing uniform quantitative repetition.

² Both words come from the same root; up to the sixteenth century they were practically synonymous.

Repetitive patterns are prominent in the very origins of language. Children have a spontaneous tendency to verbigeration—"ma-ma," "pa-pa," "obble-gobble," "humpty-dumpty," and so forth; in the earliest stages of learning to speak, they keep on mumbling repetitive variations of sound patterns. In the development of child-language, association by sound affinity plays an important part. Similarly, in many primitive languages of such different types as Polynesian and Bantu, repetitive syllable formations like "kala-kala," "moku-moku," and so forth, are the rule; they seem to be shaped on the humpty-dumpty pattern. But the most striking confirmation of the deep roots of the rhyming tendency is provided by the notorious punning habit of the unconscious, as manifested in dreams and in manic flight of ideas. The pun, we saw, occurs when two strings of thought are tied together by a purely acoustic knot. In normal, logically controlled speech, such sound-associative possibilities are inhibited, as they would destroy coherence and meaning. Thus, while writing the previous sentence, I was unaware of the fact that the word "destroy" may lead to the sound association "Helen of Troy," or "nor-mal" to *mal de mer*; however, as soon as one "tunes in" to the sound-associative field, a number of quite idiotic rhymes and puns will present themselves at once. This infantile kind of punning gibberish requires no effort of concentration; on the contrary, it is often a sign of mental fatigue like the repetitive humming of tunes or (mostly rhythmic) phrases. For, when concentration flags and conscious control is abolished, thinking reverts as if by its own gravity to more primitive fields, and among these that of rhythm and sound affinity plays a prominent part. When Freud published his epoch-making *Interpretation of Dreams*, a number of critics objected that the dreams which he quoted were full of puns and altogether too improbably "witty." The fact is, however, that dreaming means a temporary disorganization of fields of association controlled by rational field operators, so that thought slides for a while along one field, then suddenly jumps to another by making use of a preferential sound- or form-associative link; and so on to a third field in an apparently crazy zigzag. These jumps, *when*

recalled in the waking state, that is, when the rational field operators are once more in control, appear as "witty," because each of them is now perceived in the bisociative pattern of narrative and flash.



The direct proof for the existence of subconscious sound-associative fields which are normally inhibited, is provided by the pathological state of manic flight of ideas, particularly when it occurs during operations on the brain:

Foerster . . . observed manic reactions while operating on the hypothalamus. In one case, while he was operating for a suprasellar craniopharyngioma which compressed the floor of the third ventricle from below, mania developed the moment he began to manipulate the tumor and to produce traction on the hypothalamus. The patient burst forth in a push of speech, quoting passages in Latin, Greek and Hebrew. He exhibited typical sound associations and with every word of the operator broke into a flight of ideas. Thus, on hearing the operator ask for *Tupfer*, he burst into "*Tupfer, Hupfer, Hüpfer, hüpfen Sie mal. . .*" On hearing the word *Messer*, he burst into "*Messer, messer, Metzger. Sie sind ein Metzger, ein Metzel, das ist ja ein Gemetzel, metzeln Sie doch nicht so messen Sie doch, sie messen ja nicht Herr Professor, profiteor, professus sum, profiteri.*" These manic responses were dependent on manipulation of the tumor and could be elicited only from the floor of the third ventricle.³

The last phrase would almost tempt one to the wild belief that the "rhyming faculty" is localized in the floor of the third ventricle. In fact, of course, the processes involved must be assumed to be much more complicated. Contemporary neurology explains the sudden changes in emotional behaviour and mode of ideation that occur when certain parts of the interbrain are damaged or surgically manipulated, as a release from cortical control of the older, primitive-emotive tendencies of the hypothalamic stratum. Pathological laughter and weeping, rage, repetitive mumbling, punning, and other manifestations of archaic or infantile response patterns are interpreted as signs of the relaxation or abolition of cortical inhibition.

³ "The Hypothalamus," A.R.N.M.D. (Baltimore, 1940), Vol. XX, p. 732.

We may venture the hypothesis that in such states fields of behaviour emerge whose selective operator contains a strong hypothalamic component; in other words, that in such fields the hypothalamic "attunement" dominates the cortical.

Foerster's patient (and many other patients during similar operations) permits us curious clinical insight into the process of inspiration within the poet's brain—in an unexpectedly literal sense of the word. Such operations are mostly carried out without narcosis; the patient, lying face downward on the operating table, hears the surgeon's orders to his assistants. The first sound-associative link: *Tupfer*—tampon, to *Hupfer*, *hüpfen Sie mal*—go and jump into the air!—has a gruesome kind of humour coming from a man tied to the operating table, with his skull open. The second sound-associative train runs, translated, as follows: "Knife, knife, butcher. You are a butcher, a butchery, but this is a butchery, don't go on butchering like this (*metzeln*), take measurements instead (*messen*), but you don't measure Herr Professor," and so forth.

Now the remarkable thing about this second string of words is that the thought train is guided entirely by assonance and alliteration, and yet at the same time forms a meaningful sequence, until at *profiteor* it trails off into gibberish. The impure rhyme *messer* to *Metzer* leads from "knife" to "butchery" (in the sense of "massacre"), and in a witty way expresses the patient's fear of being "massacred" by the surgeon. The next impure rhyme leads him from *metzeln* to *messen*, from "massacre" to "measuring," and to his entreaty to the surgeon to "take measurements"—that is, to proceed in a more cautious, circumspect way, instead of going on "butchering like this."

How the patient's delirious babblings, while following the lures of sound association, at the same time succeed in conveying a meaningful message to the surgeon, is the same problem as that concerning the nature of poetic inspiration, that is, of the purposeful action of extraconscious fields. The patient's train of thought is obviously under dual control. One control is given by the selective operator of alliteration and assonance, for he has regressed to the primitive

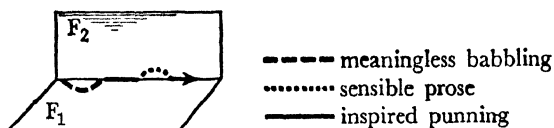
sound-associative level and has to conform to its pattern. But in the choice of sound associations a secondary selection is made according to *purpose*, which is to warn the surgeon to proceed more cautiously.

At first sight there is nothing remarkable about this. All thinking and behaviour are subject to certain selective rules, and at the same time guided by "purpose," that is, by the stress resulting from the interaction of internal and external environment. It is this stress or striving which determines the actual line of behaviour *within* a given operative field.

But the process is different in the case of our patient, and of the poet. For in normal, associative thinking both controls operate *in the same field*. The moves of the bishop in a game of chess are controlled by the selective rule that it should proceed only diagonally, *and* by the purpose of capturing the opponent's king; both these controls are expressed in the language of chess. But the two determinant's of the patient's speech belong to two quite different fields: one governed by pure sound similarity, the other by the situation on the operating table. The patient is under the compulsion to express his desires which belong to this latter field F_2 in terms which belong to the (sound-associative) field F_1 .

We saw how this compulsion came about. Surgical manipulation of a certain brain centre releases a primitive mode of associating by sound affinity which is normally inhibited, and fastens the orbit of the patient's thoughts to the field F_1 . But at the same time his emotional striving—not to be "butchered"—remains so strong, that his thoughts, tied down to field F_1 , yet are unable to quit the field of reality F_2 . Hence they have to move along the line of intersection of the two fields, satisfying the claims of both. *Without* F_2 his babbling would be meaningless. *Without* F_1 he would ask the surgeon to be more cautious in simple, sensible prose. As it is, he has to serve both masters at the same time; and though for short moments his speech becomes meaningless, and at others prosaically imperative, it always returns to the line of intersection. Each field seems to exert a magnetic influence on the other. And, as the two fields operate on different and mutually exclusive levels of consciousness, the oscillations of

the train of thought appear as oscillations of the level of consciousness between delirious babbling and frightened wakefulness. Where the two intersect in meaningful punning, we get the impression of startling, inspired wit. The spectator gets this impression of mysterious inspiration because for him no connection exists between the two different fields, whereas for the subject both are mental realities which permeate each other. The moments of inspiration are simply those when the train of thought returns from its excursions into one field or the other to the line of intersection—in this moment *both* the meaning *and* the sound pattern become manifest, while in the intervals one of the two is latent.



In the poet's case, the compulsion to think simultaneously in terms of meaning or imagery, on the one hand, and in terms of rhyme and metre on the other, is also based on a process of release; but here the releasing factor is not the surgeon's knife, but an emotive experience, for which the ordinary channels of expression are inadequate. Under its emotive pressure cortical inhibitions are relaxed, and thought reverts by its own gravity, as it were, to archaic patterns of sound association, repetitiveness, rhythmic pulsation; the jungle tom-tom begins to beat out the rhythm of the ideas. In moments of genuine inspiration, thought does not consciously look for adequate rhythms or rhymes, but on the contrary it automatically conforms to the pattern of rhythm and sound affinity—that is, to the structure of field F_1 , while it remains simultaneously attached to field F_2 . The locus of poetic creation is the line of intersection between these two fields: here meaning acts as a purposeful guide within the rhythmic phonetic matrix, while, vice versa, sound affinity acts as a purpose within the field of meaningful association. But, as at any given moment only one of the two fields is fully present to consciousness, the interaction of the two levels appears each

time as a minor miracle or act of inspiration. This apparent miracle consists in the proper rhyme presenting itself to feed the meaning, or, vice versa, in a meaningful word presenting itself to fit the requirements of assonance. Thus in the above diagram the junctional stretches on the line of intersection would represent the "moments of inspiration." Each loop between such stretches represents, when looked at from the other plane, a dive into the unconscious, as only the beginning and the end of the loop are located on the line of intersection of the two levels.

In his introspective essay "The Making of a Poem,"⁴ Stephen Spender describes this process in a different terminology. He calls, rather misleadingly, the *initial idea* of the poem "inspiration," and the *rhythmic pattern* of the poem "song":

Inspiration and song are the irreducible final qualities of a poet which make his vocation different from all others. Inspiration is an experience in which a line or an idea is given to one, and perhaps also a state of mind in which one writes one's best poetry. Song is far more difficult to define. It is the music which a poem as yet unthought of will assume, the empty womb of poetry for ever in the poet's consciousness, waiting for the fertilizing seed.

Sometimes when I lie in a state of half-waking half-sleeping, I am conscious of a stream of words which seem to pass through my mind, without their having a meaning, but they have a sound, a sound of passion, or a sound recalling poetry that I know. Again sometimes when I am writing, the music of the words I am trying to shape takes me far beyond the words, I am aware of a rhythm, a dance, a fury, which is as yet empty of words.

If we replace Spender's term "inspiration" by "initial idea" (F_2) and his "song" by (phonetic) "pattern" (F_1), then the above passage conveys a clear expression of the bisociative nature of the creative process.

THE POET'S REGENERATIVE EQUILIBRIUM

It may be useful at this point to compare the quality of the scientist's exploratory drive with the poet's creative stress. An unsolved

⁴ *Partisan Review* (Summer, 1946).

problem represents to the scientist a stimulus pattern for which he has as yet no adequate response. The stimulus gives rise to a tension for which there is as yet no earthing channel. The excitation could only be earthed in processes of internal behaviour if it were possible to reduce the particular vexing phenomenon to a general and familiar cause within the framework of universal law and order. This frustration of the scientist's integrative impulses creates a stress which permeates his whole psychic make-up, including all kinds of latent operative fields which have *prima facie* nothing to do with the problem in hand, until the trigger action of apparent or real chance makes some normally neglected or inhibited aspect of his problem manifest, and the eureka process occurs.

In the poet's case the stress results from his temporary inability to share an experience, that is, to express it. To quote Spender again, the experience may originally consist of "a line, or a phrase or two, or sometimes something still vague, a dim cloud of an idea which I feel must be condensed into a shower of words." But it is in the very nature of this type of nonverbalized experience that ordinary language, with its symbols and abstractions, is insufficient to convey it. Our normal means of verbal communication is, after all, merely a system of shorthand symbols, of labels replacing the living mental reality of images, perceptions, feelings. If the experience has a strongly emotional quality that eludes expression in conceptual terms, or refers to some subtle relationship between man and nature, man and woman, man and his destiny, which can be sensed but again not crystallized in abstract terms, then the poet finds himself in a situation analogous to the scientist: he is faced with a stimulus for which he has as yet no adequate response; he labours under a stress which cannot be earthed by sharing his experience with others.

The channels of communication being thus blocked, the impulse to communicate has to *regress* to earlier and more primitive fields of expression. Such primitive fields are those of concrete visual imagery, rhythm, rhyme, prelogical forms of association, and so forth. The capacity to regress more or less at will to these earlier fields of

thought is one of the characteristics of the poet's mental make-up. It is the process of *reculer pour mieux sauter* which is already familiar to us (compare Part Two). The creation of poetry is a process of repeated "original adaptations" achieved through continuous regressions to earlier mental levels. While it lasts, the poet lives in a state of regenerative equilibrium. Hence the frequent occurrence of infantile and schizoid features in the psychic make-up of poets. The poetic faculty is, of course, facilitated by habit and repetition—that is, a patient self-conditioning for the transfer of awareness by a particular kind of receptive attitude or reattunement of the mind to the normally extraconscious or inhibited fields. Schiller's famous rotten apples and similar artificial means of facilitation are conditioned stimuli for releasing this process.

Needless to say, conscious elaboration of the rare flights of inspiration plays an important part in the poet's work. Edison's saying, "Genius is one per cent inspiration and ninety-nine per cent perspiration," applies to the poet as well as to the scientist. The technique of elaboration is, however, not relevant to our theme.

SOURCES OF IMAGERY

We return once more to the metaphor and the creation of poetic imagery.

Just as rhythm and rhyme are not artificial embellishments of ideas but patterns of expression older than ideas, so visual and other sensory images are not artificial embellishments of thought but precursors of conceptual thought, to which under certain circumstances the mind reverts.

These circumstances occur in artistic creation, in dreams, hallucinations, under hypnosis and in pathological conditions. Again it is the latter which permit us to approach the old and hazy problem of poetic inspiration through more concrete phenomena. What William James said about his theory of emotions applies to the whole realm of psychology: if any hypothesis is ever to be definitely confirmed or disproved, we must turn for the evidence not to the normal person, in whom all processes are vague and diluted, but to

"asylum physicians and nerve specialists, for they alone have the data in their hands."

Primitive, prelogical thought is expressed in language which, to borrow Kretschmer's simile, is like the unfolding of a picture strip:

Each word expresses a picture, a pictorial image, regardless as to whether the picture signifies an object, an action or a quality. Thus "to strike" and "a blow" are expressed by the same word. These languages are not merely deficient in the more abstract type of imagery, but in practically all higher grammatical construction.⁵

He then quotes an example from Wundt of how a simple conceptual statement is expressed in Bushman language. The statement is about a Bushman who worked as a shepherd for a white man until the latter ill-treated him; whereupon the Bushman ran away, and the white man engaged another Bushman, to whom the same thing happened. Translated into Bushman language, this story is picturalised as follows:

Bushman-there-go, here-run-to-Whites, White-give-tobacco, Bushman-go-smoke, go-fill-tobacco sack, White-give-meat-Bushman, Bushman-go-eat-meat, get-up-go-home, go-merry, go-sit, graze-sheep Whites, White-go-strike-Bushman, Bushman-cry-much-pain, Bushman-go-run-away-Whites, White-run-after-Bushman, Bushman-there-other-this-graze-sheep, Bushman-all-away.

Kretschmer comments:

The thought of primitive peoples allows of but little arrangement and condensation of separate images into abstract categories; but the sensory perceptions themselves, retained directly as such in memory, unwind themselves before us unchanged, like a long picture roll. The discrete visual image dominates the scene throughout, whilst the relation between the separate pictures is barely indicated. Logical connections are as yet quite tenuous and loose. If we wish to conceive of speech at a slightly lower level still, we shall have to dispense with even those slight hints of a syntax which are present; we shall then find that the thought-processes of a people using such a language would consist entirely of an asyntactical series of pictures.

⁵ Kretschmer, *Text-Book of Medical Psychology* (London, 1934).

The primitive poetic quality of the Bushman language as compared to the conceptualized statement is obvious: the latter sounds in comparison like a dry synopsis for a film scenario. The Bushman's story consists of vivid visual images; the "substitute stimuli" for sharing his experience are sensory and direct.

Transitions from primitive picture-strip language to more abstract forms of expression can be found in the mythology and sacred books of ancient civilizations. The following two quotations are a passage from Ecclesiastes and George Orwell's parody of the same passage in modern academic jargon. The passage from Ecclesiastes retains the archaic tendency to stick to concrete visual images, but the characters in the picture strip have already become transformed into collective nouns (the swift, the strong, the wise):

I returned, and saw under the sun, that the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill; but time and chance happeneth to them all.

And here is Orwell's transcription:

Objective consideration of contemporary phenomena compels the conclusion that success or failure in competitive activities exhibits no tendency to be commensurate with innate capacity, but that a considerable element of the unpredictable must invariably be taken into account.

Under hypnosis, in hysterical attacks, and in hallucinatory states caused by certain drugs, the mind reverts to the archaic mode of thinking in pictures. The normal person experiences such regression nightly in his dreams:

Men and women of creative genius, especially artists and poets, have so frequently drawn analogies between dreams and the way in which their creative works came into being, that we may regard that relationship as definitely established. Such creative products tend to emerge from a psychic twilight, a state of lessened consciousness and diminished attentivity to external stimuli. Further, the condition is one of "absent-mindedness" with hypnoidal over-concentration on a single focus, pro-

viding an entirely passive experience, frequently of a visual character, divorced from the categories of space and time, and reason and will. These dreamlike phases of artistic creation evoke primitive phylogenetic tendencies towards rhythm and stylization with elemental violence; and the emergent images thus acquire in the very act of birth regular form and symmetry, as, for example, in the rhythm of verse or music.

And finally, regression becomes permanent and pathological in certain forms of schizophrenia. Hence the striking affinities between the drawings of schizophrenics, and primitive or infantile art. "Schizophrenic symbols, like primitive and dream symbols, are the pictorial antecedents of concepts and are not developed beyond that stage," says Kretschmer. And he quotes the case of one of his patients, a gifted young schizophrenic, who between periods of normality and abnormality has a long intermediate phase, which he calls his "picture show":

In these phases he passively experiences the outcropping of a mass of images which arise from abstract concepts, or which appear to exist in concrete objects. The images often "resemble old Norse ornaments or Roman sculptures"; sometimes they are grotesque figures, sometimes sensible film-like scenes of knights and soldiers who occupy a real old castle which lies in the valley. Most interesting are the images which arise directly out of abstract thought. For example, he is reading a philosophical work of Kant, and as he reads, the abstract thoughts are continuously converted into imagery. Whilst reading Kant on the question of the infinity of space he had the following experience: "The pictures crowded on me—towers, circles behind circles, a cylinder which thrust itself obliquely into the whole picture. Everything is showing movement and growth; the circle acquires depth and thus becomes cylindrical; the towers become higher and higher; everything is arbitrary as in an experimental picture or a dream.

We see in these pathological examples the full development of tendencies whose rudiments are found in the normal imaginative person; just as we saw in the punning and rhyming patient on the operating table the pathological extreme of the tendency to arrange words in rhythmic and sound-associative patterns. Musset's "One

⁶ Kretschmer, *op. cit.*

does not work, one listens," and Lamartine's "My thoughts think for me," are expressions of the truth that the artist's inspiration should not be compared to the climbing of a ladder to put ornaments on a façade, but rather to a falling back by his own gravity into archaic forms of perception and expression.

Artistic expression is thus seen to consist of a variety of bisociative processes between contemporary intellectualized fields of thought and those earlier fields which represent the substratum of experience of the individual and the race. Art, we said, compels us to integrate; to synthesize the particular and temporal aspects of experience with the archaic and archetypal pattern underlying it. The artist's regenerative balance prevents intellectual petrification through the growing abstractness of thought and communication. His memory reflects the memory of the race; by diving into its depths, and reconnecting it with the phenomena on the surface, he preserves the essential continuity of organic evolution, from its earliest rhythmic pulsations to the latest development of its symbolic concepts.

XXV

Rhythm and Metre

WE saw that rhythmic periodicity is a fundamental characteristic of organic life, and that patterns of experience derived from it are fed from the deepest philogenetic strata of the psyche. The emotional effect of the bisociation of rhythm and meaning is due to these deeper strata being brought into play. Rhythm is more easily conveyed, more infectious, than meaning; and, as rhythm and content fuse for the listener into one, rhythm serves as a vehicle for the sharing of experience.

The deep response which rhythm and rhyme elicit has various aspects which are closely interconnected, but are better dealt with separately.

RHYTHM AND HYPNOSIS

All the lower organic processes are patterned by periodicity and rhythmic pulsation. The rhythmic pulsations of protoplasmic substance, the contractile movements of the amoebae, infusoria, and worms, all express stereotyped motor patterns. We find them again higher up in the ciliary movements of spermatozoa, in heartbeat, circulation, respiration, peristalsis, and other visceral activities of the human organism. When conscious control relaxes, these organic rhythms frequently emerge in overt behaviour in the form of nervous automatisms like tics, drumming of fingers, rocking, the absent-minded drawing of repetitive patterns (so-called "doodling"), the verbigerations of children, the rocking movements of idiots. They manifest themselves in extreme form in the pathological re-

lease mechanisms of epilepsy, hysterical attacks, *tabes dorsalis*, *delirium agitans*, in the obsessional habits of neurotics like pattern-walking on pavements, and so forth. Rhythm is a jack-in-the-box which pops out on its springs as soon as the lid of conscious control is taken off. Its power manifests itself in everyday life, as, for example, when we catch ourselves repeating the same meaningless phrase to the rhythm of the wheels in a railway carriage, and in the magnetic deflection of attention towards a dripping tap. In the visual field similar effects are produced by the symmetrical repetition of rhythmic patterns, an example of which is the fascination exerted by the sight and sound of waves on a calm seashore.

This organic predisposition to rhythm may be formulated in general terms as follows: *Whenever several series of stimuli of approximately equal intensity compete for our attention, the series which presents itself in a rhythmic pattern will have priority.* From this law it follows that rhythmic stimuli may have such opposite effects as whipping up the subject's emotions or putting him to sleep. The rhythmic stimulus, having priority, will concentrate on itself more and more nervous energy, until the total available is focused on it. This is the well-known hypnotic effect of the shaman's tom-tom, of magical incantation, of the rocking movements of Oriental prayer, of the trance produced by ritual dances. The effect of hypnosis is to screen off consciousness from all stimuli, leaving only a narrow slit open towards the hypnotizing agent. This exclusive focusing of awareness on one person or source of stimulation is the hypnotic rapport. Hence the use of rhythmic devices in hypnosis—metronomes, flickering candles, "passes," monotonously repeated orders—to narrow down and focus the range of awareness.

If the stimulus entering through the narrow slit through which alone the subject can be reached is of a monotonous, soothing nature, that is, if it excludes the expectation of change and the necessity for adaptative responses—as in the nursery practice of "counting sheep" or humming a monotonous tune—the subject will go to sleep. If, on the other hand, the stimuli entering through the slit require response, then this response will be unconditional and of an

intensity many times surpassing that of normal response. The hypnotized subject throws the whole weight of his psyche into the required action; the ordinarily diffuse currents of impulses are all streamlined and concentrated into one single channel; the subject has become single-minded in the literal sense of the word.

Poetry at its most effective has a similar or "parahypnotic" effect. In the words of Yeats, the function of metre is "to lull the mind into a waking trance." Its effect "is not due to our perceiving pattern in something outside us, but to our becoming patterned ourselves."¹ Needless to say, when we normally read or listen to poetry, we only catch a faint echo of the original power of the shaman's incantation, of the entrancing effect of the muezzin's call. Poetry coming from the stage, reinforced by the footlights of illusion, is automatically more effective; the brilliance of the stage helps to narrow down the field of consciousness, to focus attention by screening off all irrelevant and distracting stimuli. The trancelike state to which Yeats refers consists precisely in this anaesthetizing of attention to everything outside the desired contact.

RHYTHM AND THE LAW OF ECONOMY

But, having identified the sources on which poetic rhythm draws, we now have to qualify this process. Unlike the beating of the tom-tom, or the rattling of the carriage wheels, poetic metre does not consist in simple repetition, but in more or less complex patterns of short and long, stressed and light syllables, further complicated by superimposed patterns of the timbre and pitch of the vowels used. A strophe is a series of combinations of these elements, just as a series on the roulette table is a pattern of black and red combinations, pair and impair combinations, and manque and passe combinations. For, as music has developed a long way from the simple repetitive figures of primitive monochord and monotone instruments, so the various metric forms in poetry contain their substructure of rhythmic pulsation in an *implied*, and no longer in an ex-

¹ I. A. Richards, *Principles of Literary Criticism* (London, 1924), p. 139.

PLICIT form. In free verse the rhythmic substructure has become so entirely implicit as to be sometimes no longer noticed.

To quote again I. A. Richards (whose *Principles of Literary Criticism* is perhaps the first scientific approach to the problems of aesthetics):

Rhythm and its specialised form, metre, depend upon repetition, and expectancy. Equally where what is expected recurs and where it fails, all rhythmical and metrical effects spring from anticipation. As a rule this anticipation is unconscious. Sequences of syllables . . . leave the mind ready for certain further sequences rather than for others. Our momentary organisation is adapted to one range of possible stimuli rather than to another. . . . The mind, after reading a line or two of verse . . . prepares itself ahead for any one of a number of possible sequences, at the same time negatively incapacitating itself for others. The effect produced by what actually follows depends very closely upon this unconscious preparation and consists largely of the further twist which it gives to expectancy. It is in terms of the variation in these twists that rhythm is to be described. . . . This texture of expectations, satisfactions, disappointments, surprisals, which the sequence of syllables brings about, is rhythm. . . . Evidently there can be no surprise and no disappointment unless there is expectation, and most rhythms perhaps are made up as much of disappointments and postponements and surprises and betrayals as of simple, straightforward satisfactions. Hence the rapidity with which too simple rhythms, those which are too easily "seen through," grow cloying or insipid unless hypnoidal states intervene, as with much primitive music and dancing and often with metre.²

In his excellent analysis of the effects of rhythm, Richards treats this "patterned expectancy" as something qualitatively different from the "hypnotic effect." In fact the two form a continuous scale, with the original and primitive hypnotic effect of the explicit rhythmic beat at the bottom, and the semiconscious, *implied* pulsations of free verse at the top of the series. We meet here again the process, by now familiar to the reader, of the growing implicitness in the evolution of artistic technique. In the development of hu-

² *Op. cit.*, pp. 134 ff.

mour, hint and allusion replace the primitive method of "rubbing in the joke"; the listener is forced to complete its pattern himself, by a process of intrapolation and extrapolation—which corresponds to the filling in of missing beats in a complicated metric pattern, and its extension into the future. We met with the same development towards greater implicitness in the successive techniques of creating illusion—from the bard or histrion who impersonated all the parts in his tale by voice and gesture, to the printed narrative in which illusion is produced by a chain of symbols of symbols. And we observe a similar evolution in the more and more condensed and allusive forms of metaphor and poetic imagery replacing earlier explicit comparisons which, through wear and tear, have shrivelled to empty clichés.

We may call this process, which is characteristic of the evolution of all artistic technique, the *Law of Economy*. It is based on the fundamental psychological fact of habit formation. The more often a given type of stimulus is repeated, the more automatic becomes the response to it, and the less attention will be paid to, and emotion roused by, the process. The stimuli employed by the artist to make the audience share his experience are thus apt to lose their impact by repetition—which gradually immunizes the audience against the emotional effects of that particular type of stimulation: the original bisociative dynamism degenerates into associative automatism. The oft-repeated technique, instead of eliciting a creative response from the audience, has cemented into them a conditioned reflex. The creative achievement of Köhler's chimpanzee consists in the bisociative process of connecting "branch" with "tool" for the first time. Once the new knowledge has been cemented in by repetition, its creative excitement and integrative value have gone.

The artist can only counteract the waning effectiveness of his stimuli by using increasingly condensed, implicit techniques, thus compelling the consumer to fresh bisociative efforts. To repeat an earlier metaphor: by spacing his steppingstones just wide enough apart, the artist makes his public's progress dependent on a conscious effort, while on a smooth pavement they would just amble along ab-

sentmindedly. The more intricate forms of metre are such stepping-stones, with gaps and sequences of a complex pattern supplanting the simpler regularity. The underlying regular pulsation becomes discernible to the audience only if it actively cooperates by filling in the missing beats—as in listening to syncopated music; and it is precisely this active cooperation which makes the audience receptive to the hypnoidal effect of the rhythm. In other words, while the witch doctor hypnotizes his audience by his drum and rhythmic movements, the artist, by his subtler and more indirect stimuli, merely provides the means for the audience to hypnotize itself. The first way is the archaic short-cut to self-transcendence, adequate only at the primitive stage where the self to be transcended is still almost entirely an instinct-directed id. With the development of the conscious individuality and the increasing importance of abstract thought, the integrative instinct becomes proportionally more sublimated. It can no longer be satisfied by the raptures and trances evoked by primitive ritual; these would only earth the older layers of the psyche. To achieve self-transcendence, the newer, intellectual layers have also to be engaged. The meaning of the incantation has to be accordingly more subtle and intellectualized; and the rhythmic pattern must at the same time become more indirect and implicit, so as to draw the maximum of nervous energy into the process of the eventual fusion of the two. Only thus can instinct and intellect be made to bisociate, and catharsis be achieved.

While elaborate metric forms strain our rhythmic expectations sometimes to the point of frustration, rhyme is its sudden and full reward. It has the same pleasurable, tension-relieving effect as the harmonic resolution of a musical phrase. To revert to our metaphor: in the rhyme two steppingstones smoothly touch each other, and provide relaxation and rest after the strenuous jumps imposed by the metre. Our expectation of finding another such oasis of rest after a given number of jumps increases our pleasure and provides a secondary cyclic pattern superimposed on the first. This effect is the more pronounced the more involved the metre—as, for instance, in the Petrarchan sonnet.

SUMMARY

To sum up: poetic experience is a bisociation of fields of ideational content and rhythmic pattern. The content itself is the product of a fusion of abstract ideation with sensory imagery, rooted in the archetypal layers of the past. The implicit rhythmic pattern focuses conscious attention and draws it into the vortex of even more archaic forms of experience.

On each step of the bisociative hierarchy of Art, we thus find integrations of ancient and recent fields of experience, and a corresponding arousal and subsequent earthing of otherwise frustrated self-transcending impulses.

XXVI

Character and Identification

WHAT exactly do people mean when they say that a character in a novel "lives"? Or that it is "unforgettable" and "alive in our memory"?

Before we can hope to answer this question, a few words should be said about the way we remember real people. We think that we know or remember a person by his face or figure or clothes or voice—that is, by means of visual and acoustic images. But it is not quite as simple as that. The average person, who does not happen to be a policeman, or painter, or of any other particularly observant type, will be at a loss to give an exact description even of people whom he knows quite well. He knows neither the colour of the eyes of most of his acquaintances, nor what clothes they wore the last time he saw them. This haziness of visual memory becomes particularly painful if we try to recall the image of a dead person who once meant much to us, and, to our surprise, completely fail to do so.

HOW WE REMEMBER PEOPLE

What we do remember of our ordinary acquaintances are, in the first place, certain *vivid details*—a gesture, an intonation, a few outstanding visual features. These function as *pars pro toto*—as signs or shorthand symbols for the complete image of the person. We remember these details because they made an impression, and for some known or unknown reason meant something to us. In other words, the details capable of imaginative recall and serving as memory signs for the whole person are those which have some affective

significance—so much so, that people fall in love with detached parts of a person: a voice, a scent, a pair of legs or a uniform. The pathological extreme of this phenomenon leads to fetichism.

But this again is not the whole story. Though we can consciously recall only certain features in a chance acquaintance's face, when we meet him again, *the whole* of the person will be familiar; and, if a change has occurred which affects some aspect of the visual appearance of the person, we will notice that change, although five minutes before we would have been quite unable to recall the original detail. Thus a man will say to a woman that "she has done something to her hair," but be unable to say how her hair was done before the change; or he will say to another man, "I haven't seen you wearing this tie before," though he has not the faintest idea what the previously worn ties were like. In other words, though only certain selected parts remain capable of conscious recall, a memory trace of the whole must have been present, a trace too faint to be reproduced as a visual image, and yet consistent enough to signal the discrepancy caused by the change. In a similar way, when we enter a friend's room we may notice that he has shifted his furniture about, without having any conscious recollection of its previous position, or even of the pieces it comprised. In other words, we are capable of noticing at once that in a given configuration "something is wrong" without being capable of saying what it is, or naming the "right" position of the detail.

Gestalt psychologists explain this phenomenon by saying that memory traces do not consist of a summative mosaic of details but of "organized wholes." This is certainly true; the problem is the nature of the organizing agent.¹ It is true that it is much easier to

¹ The difficulty of the Gestalt explanation, and our points of disagreement with it, refer merely to the processes which account for this organized character of the trace. For Köhler the organizing agent consists of "self-distributing electrolytic currents" in the optical cortex, and the conclusions derived from this hypothesis are applied rather indiscriminately to processes other than visual (closure-principle, etc.). The divergence between this conception and the present theory, based on the principle of selective resonance in neural functioning, will be discussed in detail in Volume Two.

remember the position on a chessboard after, say, the fifteenth move of a game actually played, than the position on a chessboard on which the chessmen have been put haphazardly by a child. The details of the situation (the number of pawns or the position of the knights) may have been forgotten, and will only be recalled by deducing the detail from the functional coherence of the game. But all this presupposes an organizing agent, rule, or operator, which changes the summative mosaic into an organized whole; and this agent is not necessarily of a visual nature. In the case of the chessboard, the rules of chess act as such an agent, enabling us to remember the whole, while forgetting the details if detached from the whole. But of what nature are the organizing agents which enable us to remember the total picture of a room while forgetting the individual pieces of furniture, and which make it possible to retain a total impression of a face without retaining as separate items the colour of the eyes, the shape of the ears, or the way the hair is parted?

Let us take the simpler example of the room first. We will assume that on our first visit all the pieces of furniture belonged to the same period. Then—to revert to our former terminology—the selective operator of the field active in our memory will reject a piece of furniture of a different period as “wrong,” regardless of whether the individual pieces of furniture are recognized or not. For a selective operator can survive the dropping out of any number of the members of its field and thus reject a memory as “wrong” without enabling us to reproduce the right one.

Now let us further assume that the furniture in the room was previously arranged in a certain geometrical pattern, for example, armchairs and sofa in a semicircle round the fireplace, and the rest of the furniture forming a semirectangle along the three other walls. We then have a second component of our field operator which again will reject disturbances of the geometrical pattern as “wrong” without enabling us to recall the proper place of the individual members in the pattern. The total impression of colour and lighting in the room may provide a third component, again regardless of de-

tail; and these various selective agents will combine into a matrix of the room which will act as a fairly fine-meshed filter, rejecting all details that do not fit into the whole, while still not enabling us to recall the details which do fit.² Naturally, there will be a number of details which can be changed without being noticed, for it is in the nature of the filter to reject only such changes which conflict with any of the selective criteria applied—that is, with those general aspects of the room which have assumed conscious or unconscious significance for us. In a furniture dealer's storeroom, where neither period, nor spatial arrangement, nor colours, nor values can serve as selective operators, no changes will be noticed—except perhaps that the prices on the labels have generally gone up; and this again though we don't remember the previous price of separate items.

Which, then, are the selective operators which enable us to retain a total impression of a face, of a personality, without remembering the details? They appear in everyday life mainly as *adjectives of character*: we talk of an innocent, or lascivious, or energetic, or clever, or dull *expression* of a face; of a hard, or brutal, or sensitive face; of a horse face, a madonna face, an aristocratic face, and so on. When asked to give a definition of any of these terms, we meet with the same difficulty as when asked about the details of the furniture in the room; and yet these apparently vague judgments of character, type, expression, and so forth, are the selective operators which enable us to retain an impression of the person. These impressions of the total person, like the retention of simple characteristic features, depend in the last resort on a dynamic, affective relationship. The affective response may be very faint or even unconscious, but without it the person would altogether fade from memory. The affective component may be a half-conscious resemblance to another person who in the past had some importance

² The physicist will find in this interpretation of the functioning of memory-traces certain parallels to the functioning of scanning circuits in the type of calculating machine known as "electric brain."

for us, though this resemblance may be based on factors undiscernible by anybody else. It may be determined by our mood at the moment of the meeting, its circumstances and background, and other conscious or unconscious factors. The fact remains, that in both forms of remembering people—by “significant detail” and by total impressions of a selective nature—their memory trace was impressed upon our minds by an affective process.

The effects of this emotional substratum of our memories of people are even more marked in our attitude to their manner of behaviour. We make so-called “instinctive” judgments as to how people would behave in a given situation, even if we only know them slightly; what to expect of them, how much to trust them, and so forth. Again, such predictions of behaviour include no details, merely an assessment of the general orientation and type of reaction of the person. We are so accustomed to make such behaviour assessments, and by and large they are so correct, that we fail to see how difficult they are to explain. For we know practically nothing of the person’s intimate past, his heredity, and early environment, and of the thousand other physiological and psychological factors which influence his actions. Ignorant of all these causal threads, and of the way they are knitted together, we are nevertheless able to guess the resultant pattern, and to eliminate with considerable assurance “wrong” predictions by saying: “Oh, no, X would never be able to do that sort of thing.” Thus our assessments of behaviour are again based on selective processes of an even more dynamic character. The projective nature of these processes becomes apparent in the fact that while *knowing* very little *about* a person we may have a fairly good idea of what it would *feel* like to *be* him.

This feeling-in process, or empathy, is, as we saw, based on the projection of part of our own personality into the shell of the other. Which aspect or functional sub-whole of our own personality would fit the shell is decided by the, mostly, unconscious interpretation of certain signs in the other’s appearance and behaviour. The richer the personality, the more heterogenous, contradictory, unavowable aspects it contains, the more empathetic understanding of others it

will be capable of. It has been said that to describe a murder convincingly, the writer must harbour a murderer inside him.

Empathy can be described as a process of "projection" or "introjection"; both are metaphors referring to the experience of partial identity between the subject's mental processes and those of another, with the resulting insight into the other's mental state and participation in his emotions. Empathy becomes sympathy when to this mental resonance is added an active desire to collaborate and help. Needless to say, such partial identifications may be mixed with sexual attraction, hatred, or other emotions.

In short, the "living image" of other people in us is not a photographic or phonographic image. It is not a mechanical reproduction of the original in a memory trace. The memory trace should rather be compared to the work of a caricaturist, who concentrates on significant detail, combined with that of an emotional artist, who disregards detail and is only concerned with his subjective experience of the model, based on the projection of his own thoughts and emotions into it. In other words, the images of *real people* in our memory are not as different from our images of *fictional characters* as we generally believe. The two kinds of traces differ according to the quality of the experience which caused them, and have different labels attached to them. The psychological processes which relate experience, trace, and reproduction are essentially the same for both, and from the standpoint of psychology "real" and fictional experiences only differ in degree, not in kind. This fluidity of the boundaries becomes manifest in dreams and in pathological states where no distinctions are made between people met in the flesh or through the medium of fiction, and there is furthermore good evidence for the assumption that in early childhood the distinction is equally vague.

MENTAL REPRESENTATION OF FICTIONAL CHARACTERS

Some authors give meticulous descriptions of the visual appearance of their characters; others give little or none. The trend in modern literature is towards the latter technique. This is due partly

to the law of growing implicitness, that is, to the tendency to let the reader build up his own image of the character with the aid of a few significant hints; and partly, it seems, to the realization that the reader's image of a character, even if very vivid, is of a mainly nonvisual nature, and that no amount of descriptive accounts of golden hair, violet eyes, aquiline noses, rosy complexions, and so on, can alter this fact. There are people endowed with the faculty of eidetic imagery, that is, of really *seeing* mental images with dream-like or hallucinatory vividness; but this faculty, though frequent in children, is relatively rare in adults. The average adult does not really *see* an image when he recalls it from memory, although he takes it for granted that he does; at best he sees some characteristic detail, which deputizes for the whole, while the rest of the image is of the cloudy but nevertheless selective nature described in the previous section.³ One can catch out a person who fallaciously believes that he "sees" a remembered person X, by asking him such questions as: "What kind of trousers is X wearing? What kind of hat? What has he got in his breast pocket?" and so forth. If real *seeing* took place, the subject could answer promptly, as if reading the answers from a picture. What usually happens, however, is that the subject, stimulated by the question, will "fill in" the detail which previously he did not see at all, that is, he will conjure up a new hazy image and fit it into the previous void.

If this is true of our images of real people, it is, of course, much more true of our images of fictional characters, where even the original sensory impression is lacking. A character may be "alive" with the utmost vividness in the reader's mind, but this vividness is not of a visual nature. The reader may fall in love with the hero, shed tears over his misfortunes, and get palpitations when he is in trouble—and yet be unable to visualize him in his mind's eye or give a detailed description of his appearance. When we say that we "see"

³ The technique elaborated by Jaensch and his school makes it possible to decide experimentally whether a subject really sees an image (as for instance we see afterimages after looking at the sun) or whether he only believes that he "sees" it.

a character, we really mean that we have an intensely vivid conception of certain aspects of him—for example, his manner of moving, of behaving in a given situation, of a gesture or inflection of voice. When a novel is made into a film and the hero suddenly takes visual shape on the screen, this comes to most people as a shock; they feel that this is not how they imagined him—though they would be unable to say how exactly they did visualize him. And though they lack a concrete optical image, they are convinced that if they met, say, Anna Karenina in the street, they would recognize her at once. And this is probably true, paradoxical as it seems. It is the same kind of paradox as that of the room where “something has been changed” or of the woman who has “done something to her hair,” that is, we are able to recognize but unable to reconstruct. And our ability to recognize is again based partly on sharp, significant detail, and partly on the operation of a number of selective patterns or filters: for example, I may imagine Karenina as resembling somebody I have known, or as carrying a particular kind of muff, and so forth.

Thus, contrary to our belief, the dim, unfocusable visual aspects are only one factor, and frequently one without great importance, in our mental representation of a fictional character. Its trace in us is of a much more complex nature, a mental field in which many processes converge. Scenes from the hero's past have, through partial identification, become part of our own experience and have enabled us to predict how this or that event will affect him. The attractions and revulsions which his past acts produced in us have crystallized in a general attitude to him, as to a real person. His idiosyncrasies, his background, fears, and hopes have become an integrated part of our own experience. In their ensemble all these factors form that fine-meshed selective filter which rejects anything inconsistent with our conception of the character, and enables us to recognize Karenina in the street without knowing what she looks like.

Thus, while our images of real people are influenced by affective factors and are based largely on the process of projective empathy, our images of fictional characters are entirely due to them, for in the

second case the mind has no other sources to draw upon. To know what Hamlet feels in a given situation is the same thing as to know what it feels like to be Hamlet. We have to project ourselves into Hamlet or Hamlet into ourselves, which amounts to the same thing; namely, an act of self-transcending identification. The image of a hero in us is a phantom fed from our own mental sources. The artist objectifies some aspects of his experience in the creation of a character, and the reader re-creates the character out of *his* own experience, using the text as a catalyzing agent.

The character will be potentially the more alive, the more generally valid the artist's experience, and the deeper it reaches down towards the common archetypal roots. Its actual aliveness and vividness for the individual reader depends on the extent to which he is capable of identifying himself with it. This is true regardless of whether the reader admires, despises, pities, or loves the character. For in order to love or hate something which only exists in a series of signs made in printer's ink, these signs must be endowed with a phantom life derived from the reader's own ego. It is this act of self-transcendence which is at the basis of, and the vehicle for, all subsequent emotional attitudes towards the character, which has been split off the reader's individuality like Minerva budding out of Zeus' head.

XXVII

Conflict and Plot

IN THE hierarchy of bisociative processes that constitute art, the most powerful effects are derived from intersections of conflicting fields.

The conflict may be set inside one character (Antony the soldier versus Antony the lover), or between two or more characters, or between a character and a nonhuman agent or principle such as chance, fate, God. Conflict between characters may again be subdivided into clashes between different temperaments or ideas or scales of value, or between competing interests of the same kind, for example, sexual rivalry. The conflict may be explicitly stated or merely implied in the plot. But the common principle in all these variations is that each of the conflicting characters or ideas must be right within its own terms of reference, that the audience should be compelled to accept both conflicting fields as valid, and that the conflict should thus be carried into the reader's or spectator's mind as a clash between two simultaneous and incompatible identifications.

Conflict thus always reveals a paradox in the human condition. The paradox may be a superficial one, as in the case of divided sympathies for two competitors, with the resulting desire to help both, that is, to harm both. If traced to its roots, this paradox will resolve itself in the more fundamental conflict between the sympathetic and competitive aspects of human nature, in the polarity between the self-asserting and self-transcending urges. The dilemma has been referred to a level from which a deeper insight

into the human condition is possible; the particular conflict has been earthed in the acceptance of its fundamental insolubility.

The function of conflict is essentially the same in drama, epos, or novel. And the process of experiencing conflict is essentially the same for artist and audience. Let the author be Shakespeare and his experience the process which occurred in his mind on reading Plutarch's life of Caesar. By a series of acts of imagination, the author identifies himself with each of the characters in turn—Caesar, Brutus, Antony—projecting some aspect of himself into each of them and speaking through their mouths; or, we may just as well say, introjecting them into himself and lending them his voice.

This, then, is the experience which the author wants his audience to share. He provides as stimuli actors on a stage or words in print. In both cases his experience will be shared only if the audience responds to the stimuli; otherwise the words will remain a dead letter and the stage a trite mummery. To elicit this response, Brutus and Caesar have to be alternately presented in situations where they capture the sympathy of the audience and compel them to adopt the thought-patterns now of Caesar, now of Brutus; to build up inside their own minds fields of behaviour corresponding to both Brutus and to Caesar. By creating this double sympathy and double identification, the author leads his audience to a powerful climax where the conflict is experienced as a bisociative clash of two fields in the spectator's own mind. Thus a conflict of values is externalized by the artist in creating character, and internalized again by the audience in absorbing it.

The precondition for conflict giving rise to aesthetic experience is that both antagonists must exist in their own right. The villain must express some common villainousness in ourselves; he must enable us to experience what it feels like to be frankly a villain. By suffering with Desdemona and identifying ourselves with Othello's despair, we are compelled to hate Iago; but we can only hate Iago if he has come to life for us and in us; and he has only come to life in us and commands a certain amount of our sympathy because he too is a projected aspect of us, is the embodiment of our

frustrated ambitions and jealousies, the bite of the underdog; for everybody is somebody's underdog. Without this silent complicity of ours, Iago would be merely a stage prop, and we could hate him no more than a piece of cardboard. Thus, while satisfying the integrative tendency through identification with one character, art at the same time neutralizes aggression by compelling us to understand, and even sympathize with, his antagonist. It automatically mirrors both sides of the medal, while in our practical pursuits we only see one at a time.

Literature admits of no black-and-white technique; the more evenly our sympathies are distributed between the antagonists, the more latent aspects of our own personality become actualized, the more significant the work becomes. Caliban and Prospero, Faust and Mephisto, Don Quixote and Sancho Panza, Christ and the Great Inquisitor—each of these couples fights an everlasting duel, in which we act as seconds for both. In each pair two universes clash, two self-contained frames of reference, two hierarchies of values intersect. All great works in literature contain variations and combinations of such archetypal conflicts rooted in the human condition, which first occur in mythology and are restated in the specific terms of each period. Poetry, according to Gerhart Hauptmann, is "the distant echo of the primitive word behind the veil of words." In the same sense, the action of a drama or novel is always the distant echo of some primitive action behind the veil of the period's costumes and conventions. There are no new themes in literature, just as there are no new human instincts; but there are in each period new sublimations, new settings and rules for fighting out the old battles yet again; and new ways of combining several conflicts into composite patterns, that is, plots.

These archetypal conflicts are derived from the basic paradoxes of man's biological and social make-up. They are of a limited number, and they all recur in countless symbolic variations in mythology, folklore, and literature. I shall confine myself to a few typical patterns.

CONFLICT BETWEEN MAN'S DESIRE FOR (a) OMNISCIENCE
OR (b) OMNIPOTENCE—AND THE NATURAL OR DIVINE
LIMITATIONS IMPOSED ON HIM (MAN VERSUS UNIVERSE)

Examples: the forbidden fruit (*a*); Jacob's struggle with the angel (*b*); the Tower of Babel (*a + b*), Ecclesiastes (*a*); Prometheus (*b*); Faustus (*a + b*); Buvard and Pécuchet (*a*); and a whole host of broken Promethean heroes in recent fiction by authors as wide apart as Dostoevski and H. G. Wells. We note that in the later developments of the theme the law of progressive implicitness makes itself felt in the more discreetly allusive, almost shamefaced way in which the Promethean impulse is presented. We also note that, with the growing recognition of man's limitations and cosmic insignificance, a process of resigned scepticism sets in which makes the Promethean hero appear either as a madman (Wells's Dr. Moreau, Stavrogin in *The Possessed*, and their innumerable imitations), or as a fool (Buvard and Pécuchet).

CONFLICT BETWEEN MAN'S INSTINCTS AND THE SOCIAL
LIMITATIONS IMPOSED ON HIM (MAN VERSUS SOCIETY)

This archetypal pattern branches into several categories and subcategories such as:

1. *Sexual conflicts*: (*a*) sexual drive versus incest taboo (see for a full list Reik's *Das Incest-Motiv in Dichtung und Sage*); (*b*) sexual drive versus monogamy and convention (at least half of the total bulk of world literature, from Vulcan-Mars to Madame Bovary, Anna Karenina, and variations of the triangular and polyangular situation); (*c*) woman's sexual drive versus her drive for emancipation (Amazon myths, women in male disguise, bluestockings from Lysistrata to Ibsen and Ann Veronica); (*d*) sexual drive versus other social obstacles (*Romeo and Juliet*, *Paul et Virginie*, etcetera); (*e*) sexual drive versus spiritual aspirations (or the conquest of the flesh, from Buddha to Aldous Huxley).

2. *The self-assertive power-drive* of the individual *versus social obligation* towards (*a*) the tribe, (*b*) the nation, (*c*) the social

class, and (d) society in general. Examples range from *Coriolanus* through *Le Rouge et le Noir* to the stereotyped Soviet novel.

3. The *self-transcending tendencies* of the individual *versus social pressure*, or *Sensitive Hero and Callous World*: (a) with emphasis on *aesthetic* self-transcendence: the artist and society, the ivory-tower motif, most school memoirs and autobiographic novels (*L'Éducation Sentimentale*, *Of Human Bondage*, *Jean Christophe*); (b) with emphasis on *ethical* integration. Here the hero's system of values differs from the conventional values of his time, and he appears in consequence as either naïve or mad or an inspired fool (Perceval, *The Lay of the Great Fool*, Don Quixote, Eulenspiegel, Dostoevski's *The Idiot*, Shaw's *Adventures of a Black Girl in Search of God*, Camus' *L'Étranger*, and other variations on the gentle-savage-goes-to-town theme).

CONFLICT BETWEEN TWO INCOMPATIBLE LOYALTIES

In other words, conflict between two types of social integration, for example, *love versus patriotism* (Judith and Holofernes, Antony and Cleopatra, Katuschka and the Five-Year Plan, and the stereotyped secret agent's dilemma). This motif is the archetype of ethical conflict between different *aims* of the integrative tendency (compare Part Two).

CONFLICT BETWEEN ENDS AND MEANS

A variation of the previous, the conflict being between metaphysical and secular values, for example, the sanctity of individual life versus the interest of the group. Examples range from Abraham's haggling with the Lord to spare Sodom for the sake of five righteous men, through Dostoevski's *Great Inquisitor* to Aldous Huxley's *Grey Eminence*.

THE IMPACT OF TIME

This is a subcategory of the first conflict on this list: the desire for immortality versus death. It is expressed, among others, in the motif of the struggle of generations—from David and Saul to

Fathers and Sons. A variant of this are serial novels and family sagas—*The Rougon-Macquarts*, *The Forsyte Saga*, *The Thibaults*, *The Old Wives' Tale*, where the theme is not focused in one conflict but appears in the form of a continuous friction of the characters against time, and their attrition by it. In other words, the conflict is between factors in human nature which are outside time (instinct, tradition) and those which are a function of time (biological decay and social change).

FATE VERSUS VOLITION

This is again a subdivision of the first motif mentioned, but one of special importance in the progress of literature. It is an archetype of great plasticity which undergoes periodic changes according to the prevailing conception of fate. In the book of Job, destiny is embodied in a jealous god who insists on the absolute, grovelling submission of the human will. In *Oedipus Rex* destiny appears in the shape of wily and malevolent powers who trick Oedipus into fulfilling his predestined fate while conceding the appearance of his acting by free will; their traps appear as hazards (Oedipus meeting his father on the crossroads, and so forth). Such fateful hazards remain for a long time the main levers of destiny's interference with man. The turning point came with the Renaissance; the change is apparent in the new developments in Elizabethan drama. Romeo and Juliet still both die as a result of unfortunate misunderstandings ("Oh! I am Fortune's fool"—"One writ with me in sour misfortune's book"). But, roughly from Henry IV onwards, all major characters in Shakespeare are the victims not of outer, but of their inner destiny; not of blind fate, but of their blind passions. Cassius: "The fault, dear Brutus, is not in our stars, but in ourselves"; Hamlet: "Call me what instrument you will, though you can fret me, yet you cannot play upon me"; Iago: "'Tis in ourselves that we are thus or thus. Our bodies are our gardens, to the which our wills are gardeners. . . . If the balance of our lives had not one scale of reason to poise another of sensuality, the blood and baseness of our natures would conduct us to most posterous conclusions:

but we have reason to cool our raging motions, our carnal stings, our unbitted lusts."

The conflict between volition and fatality thus becomes internalized and transformed into the dichotomies of reason and passion, of spirit and flesh, of mind and body, and is finally immersed in the antinomy of free will versus determinism by heredity and environment (Ibsen, Strindberg, Zola, naturalism). Atoms, chromosomes and natural laws take over the role once played by the gods and fates; "destiny from above" has become "destiny from below"; but the essence of the predicament remains the same.

XXVIII

The Night Journey—or the Meeting of the Tragic and Trivial Planes

THIS ARCHETYPE leads us to the very essence of tragic art and to the conclusion of this book. Its variations are legion ; its basic pattern can be roughly described as follows. Under the effect of some overwhelming experience, the hero is made to realize the shallowness of his life, the futility and frivolity of the daily pursuits of man on the Trivial Plane of existence. This realization may come to him as a sudden shock caused by some external catastrophe, or as the cumulative effect of a slow inner development, or through the trigger action of some apparently banal experience which assumes an unexpected significance. The hero then suffers a crisis which involves the very foundations of his being ; he embarks on the Night Journey, is suddenly transferred to the Tragic Plane—from which he emerges purified, enriched by new insight, regenerated on a higher level of integration.

The symbolic expressions of this pattern are as old as humanity.¹ The crisis or Night Journey may take the form of a visit to the underworld (Orpheus, Odysseus), or the hero is cast to the bottom of a well (Joseph), buried in a grave (Jesus), swallowed by a fish (Jonah), or he retires alone into the desert, as Buddha, Mahomet,

¹ Cf. Jung, *Psychology of the Unconscious* (New York, 1916) ; M. Bodkin, *Archetypal Patterns in Poetry* (Oxford, 1934) ; Toynbee, *A Study of History* (Oxford, 1947).

Christ, and all prophets and founders of religions did at the crucial turn in their lives.

I went down to the bottoms of the mountains: the earth with her bars was about me for ever.

The journey always represents a plunge downward and backward to the origins and tragic foundations of existence, into the fluid magma, of which the trivial plane of everyday life is merely the thin crust. Symbols of it are found in all primitive rites and religions. Before the decisive changes in life, like puberty and marriage, the initiation rites of the tribe compel each member to undertake the Night Journey. Segregated from the community, under conditions of abstinence, physical hardship, and sometimes torture, he is made to experience the tragic solitude of man's condition, is forced to reestablish contact with the Cosmic Plane. Echoes of these rites are found in all religions: in the institution of periods of "retreat," in the symbolic drowning and rebirth of baptism, in the First Communion and its Jewish equivalent, in periodic fasts and purifications, in the initiation rites of religious orders, and even of college and university societies and Masonic lodges.

Both the Freudian and the Jungian schools assert an intimate connection between the mythological and dream symbols for the Night Journey on the one hand, and unconscious cravings for regression to the origin of life, the mother's womb, on the other. The associative connection is no more fantastic or morbid than are our habitual references to "motherland," "mother earth," "mother ocean," or "mother church."

Childish phantasy eagerly seizes upon the image of the Church, for the Church is in the fullest sense and from every point of view a mother. Not only do we speak of "Mother Church," but even of the "womb of the Church," and in the ceremony of the "benedictio fontis" of the Catholic Church the baptismal font is even called the "immaculatus divini fontis uterus" (the immaculate uterine font of divinity). . . . The Church here represents a higher spiritual substitute for the merely natural, and in a way, "carnal" tie to the parents. It is an image therefore that can release an individual from his unconscious natural bonds,

which strictly speaking are no bonds at all, but simply a condition of primordial unconscious identity.²

This craving for the womb, for the dissolution of the ego in a lost, vegetative oneness—the Freudians' nirvana principle or oceanic feeling—is further symbolized in the image of mother ocean, in whose calm depths all life originates. Mythology abounds in such symbols, which one may call "the metaphors of the racial unconscious." However bewildering these symbols may appear to the waking mind engaged in its routine pursuits on the Trivial Plane, they are familiar to the dreaming mind and recur with almost mathematical regularity in the sleep of people who have nothing else in common. The Night Journey is the biological antipode of Promethean striving. The latter attempts to steal the bright fire from the gods; the former is a sliding back towards the original pulsating darkness, which was one and undivided, and of which we all were part before our separate egos were formed.

In other words, the Night Journey is a regression of the integrative tendencies, a crisis in which the mind undergoes an atavistic relapse—to return refreshed and ready for a higher form of synthesis. It is once more the process of regenerative equilibrium, of a *reculer pour mieux sauter*; the integrative drive, having lost its bearing in trivial entanglements, has to go back towards its origins to recover its vigour.

Without our regular little night journeys in sleep, deprived of this contact with the deeper layers of the mind, we would probably fast become victims of mental desiccation. Dreaming is for the average person an equivalent of artistic or mystical integration, his only means of self-transcendence, of breaking through the crust of the Trivial Plane. It is probable that dreaming is an aspect of sleep as important as its physiological aspect and that, far from being merely a vehicle for wish fulfilment, that is, for the self-assertive tendencies (as some Freudians assert but Freud himself never asserted), it fulfils the equally important task of satisfying the self-

² Jung, *Contributions to Analytical Psychology* (London, 1928), p. 395.

transcending tendencies, and is an essential function of what one may call man's *integrative metabolism*.³

THE GUILT OF JONAH

Among the many variations in mythology of the Night Journey or death-and-rebirth archetype, one of the most forceful is the story of Jonah and the whale. This is probably due to the fact that in none of the ancient civilizations was the tension between the Tragic and Trivial planes more intensely felt than by the Hebrew race. The first was represented by a succession of catastrophes, by the exacting presence of Jehovah and of his apocalyptic prophets; the second by the rare periods of relatively normal life which the overstrung spiritual leaders of the tribe condemned as abject. Jonah had committed no crime which would warrant his dreadful punishment; he is described as a quite ordinary and decent fellow with just a streak of normal vanity—for he is justifiably “very angry” when, at the end of the story, God does not raze Nineveh as Jonah had prophesied at His bidding, and thus makes Jonah appear an impostor or fool. Now this very ordinary person receives at the beginning of the story God’s sudden order to “go to Nineveh, that great city, and cry against it”—which is a rather tall order, for Jonah is no professional priest or prophet. It is quite understandable that he prefers to go on leading his happy and trivial life. So, instead of accepting the call of the Tragic Plane, he buys a passage on a ship to Tarshish; and he has such a clean conscience about it, that while the storm rages and the sailors cry “every man unto his god” and throw the cargo into the sea, Jonah himself is “fast asleep.” And therein—in his normality, complacency, in his thick-hided triviality and refusal to face the storm, and God, and the corruption of Nineveh; in his turning his back on the tragic essence of life—therein

³ Naturally, the dive performed in normal dreaming is a shallow one. Behaviour under sodium-amytal narcosis, under hypnosis or during a psycho-analytic treatment, reveals the existence of a whole series of mental layers, from the preconscious strata near the surface to the deepest layers of the collective unconscious.

precisely lies his sin, which leads to the crisis, to the Night Journey in the belly of the whale, in "the belly of hell."

The waters compassed me about, even to the soul: the depth closed me round about, the weeds were wrapped about my head. . . . *yet hast thou brought up my life from corruption, O Lord my God.* When my soul fainted within me I remembered the Lord: and my prayer came in unto thee. . . . *They that observe lying vanities forsake their own mercy.*

The whole story sounds in fact like a poetic allegory of a nervous breakdown with subsequent spiritual conversion. It might serve as an allegorical summary of the story of Raskolnikov or Dimitri Karamazov, or of any novel built on the crisis-conversion pattern. For it should be repeated that Jonah's only crime was to stick to the Trivial Plane and to disregard the uncomfortable, unjust, terrible voice from the other plane. Melville understood this when, in the great sermon in *Moby-Dick*, he made his preacher sum up the lesson of Jonah in this unorthodox moral:

Woe to him who seeks to pour oil upon the waters when God has brewed them into a gale! Woe to him who seeks to please rather than to appal! Woe to him whose good name is more to him than goodness! Woe to him who, in this world, courts not dishonour!

And the author of the Jonah story himself must have been aware of its vast implications, of the impossibility of treating all men who lead the trivial life as harshly as Jonah—for the story ends with a quite unusual act of clemency by the otherwise so vengeful desert-god, which comes as a curious anticlimax full of ironical tolerance for the inadequacy of man:

Then said the Lord . . . And should not I spare Nineveh, that great city, wherein are more than sixscore thousand persons that cannot discern between their right hand and their left hand; and also much cattle?

Just as there is no mythology without some variation of the death and rebirth motif, so there is hardly any epoch of world literature

without an equivalent treatment of it. Even so urbane a novelist as E. M. Forster, always careful to avoid drastic effects, has in each of his five novels one central episode in which the hero or heroine, who previously walked with self-assurance on a smooth surface, seems to fall into a manhole with its lid off and reemerge as a spiritually changed character. (The most striking of these archetypal episodes is perhaps Mrs. Moore's visit to the Marabar caves.) With Tolstoy and Dostoevski the crisis-conversion motif is an explicit, central theme; in modern Western literature it is treated in a more discreet, allusive, implicit manner. In German literature—from the Descent to the Mothers in the second part of *Faust*, to Thomas Mann's *The Magic Mountain*—it is presented under a highly intellectualized philosophical aspect. Maud Bodkin⁴ has made an exhaustive study of the occurrence of the rebirth pattern in works as wide apart as *The Ancient Mariner*, Morgan's *The Fountain*, Eliot's *The Waste Land*, and D. H. Lawrence's *The Plumed Serpent* and *The Man Who Died*. Authors from whose main works this pattern is entirely absent suffer, despite technical virtuosity and other merits, from a lack of depth, emotional impact, or significance. This seems to be one of the reasons why, for example, Balzac so often has a curiously unsatisfactory, frustrating effect—just as a gallery of exquisite tapestries may produce a sudden craving for the third dimension.

Needless to say, not all great novels are or should be "problem novels"—if this were the case, literature would be very boring indeed. But indirectly and implicitly each major work of art has some bearing on the most fundamental of all problems, man's relation to the universe around him. Literature would become unbearable if it consisted in a constant heavy barrage of the tragic and the archetypal. But there is no flower without root—except artificial flowers—and there is no work of art, however gay, precious, or serene, that is not in the last instance fed, however indirectly, through however delicate capillary tubes, from the tragic substratum

⁴ *Op. cit.*

of man's experience. The effect of humour is the smile—a sub-laugh or *sourire*; the effect of tragic art is always a *sous-pleure*—the expression of self-transcending rapture for which our language has no name.

THE TRAGIC AND THE TRIVIAL

This last part of the present work aspires to be neither a system of literary criticism, nor anything approaching a complete theory of literary method and technique. I have merely attempted to select from among “the warps and woofs of the rainbow” certain essential threads; to isolate the basic process which art has in common with scientific discovery and mystical contemplation, which underlies the tragic, the comic, and the neutral arts alike; to show that these form a continuous series, with the same mental phenomenon, the eureka process, as a common denominator of all creative achievement, and that these higher mental functions can only be described in bi-sociative, not in associative terms. I have also tried to show that a system of values is possible that is not externally imposed either by axiomatic revelations or by quantitative (utilitarian or pragmatic) concepts, but is based on the recognition of the integrative tendency as an irreducible aspect of organic development; and that the system of values derived from this approach is a serviceable guide when applied to ethical and aesthetic problems alike.

Throughout this work little has been said about the hereditary and environmental factors which enable the prophet, the artist, or the scientist to bring these higher mental potentialities into play. This question obviously lies beyond the scope of this book and is a subject for the geneticist, endocrinologist, neurologist, and sociologist. But there is one particular aspect of the problem which is relevant to the theme of this book, and has been repeatedly touched upon. It is the nature of the “creative stress,” this necessary, though not sufficient, condition for the occurrence of the eureka process.

This stress, we said, is the result of a particular type of frustration or obstruction of the integrative tendencies: of the scientist seeing a problem in phenomena which others take for granted; the prophet

sensing the corruption in what the ordinary man accepts as usage and routine; the mystic suffering from oceanic thirst where others go unaware of the parching of their soul; the poet experiencing the rhythmic pulsation of living matter and visions of archaic imagery, while others talk in prose and see only with their retina; the painter seeing the eternal play of form and colour where others see only objects for everyday use or the carcass of a flayed ox. The common denominator in all these variations of the creative stress is the tension between two planes of existence: the Trivial Plane of daily routine, of the habits of thought and behaviour; and that other field which we have alternatively called the Tragic or the Cosmic, in which are located all ultimate causes, a sensed order from which all "natural laws" are derived: eternity, infinity, the experience of all-oneness. Descriptions of this Tragic Plane are necessarily vague, for it is not a discrete, defined concept, but an extended field of absolutes or ultimates. The creative stress can be defined as the consciousness of the separate existence of the two planes and the urge to blend them into one, and thus to achieve the earthing or catharsis of the integrative impulse. This can never be fully achieved; partial achievements, in a series of bisociative sparks, constitute the sum total of our religions, sciences, and arts.

The average person in our industrialized age moves practically all his life on the Trivial Plane, and only comes into contact with the Tragic Plane on a few outstanding occasions—during the storms of puberty, when he falls in love, or in the presence of death.⁵ Sudden catastrophes—famines, wars, and plagues—may suddenly transfer a whole population from the Trivial to the Tragic Plane; but people soon succeed in trivializing the tragic itself and carry on "business as usual" in the bombarded city. The author saw a striking example of this in a prison during the Spanish Civil War when a man, condemned to death and suffering from appendicitis, was prescribed a

⁵ The essential point of the so-called "existentialist" philosophy which swept France immediately after the end of the German occupation, seems to be just this emphasis on catastrophic crises in which alone the individual becomes truly "free"—i.e., reintegrated in a higher synthesis.

milk diet by the prison doctor two days before his scheduled execution. Many of the activities of our civilization during and in the intervals between catastrophes conform to the same split pattern.

Habit and convention form a horny crust round civilized man's existence. Its callosity, while protective in some respects, is pernicious in others, for it dims his awareness of danger signals and prevents vitally necessary adjustments. These operative habits are of great persistency, and so are the inhibitions exerted by them. The selective operators which function in the minds of certain social groups are reinforced to such a degree by education and social pressure, and their range of associations is so impoverished, that creative bisociative jumps are made almost impossible, while the number of conditioned thought inhibitions by far surpasses any primitive set of taboos. As the Pavlov-trained dog, when faced with an ambiguous stimulus which might require either salivation or the inhibition of salivation, becomes deranged in all his reflexes, so modern man, with his over-conditioned and desiccated mental equipment, responds to unusual stimuli with an increasing rate of nervous breakdowns, neuroses, and insanity. Confined as he is to the arid plane of associative routine, his contacts with tragic reality, instead of eliciting original adjustments, throw him completely out of gear. The Duke of Wellington, when asked whether he agreed that habit is man's second nature, exclaimed: "Second nature? It is ten times nature!" Routine has become man's rusty armour which makes his living flesh rot underneath.

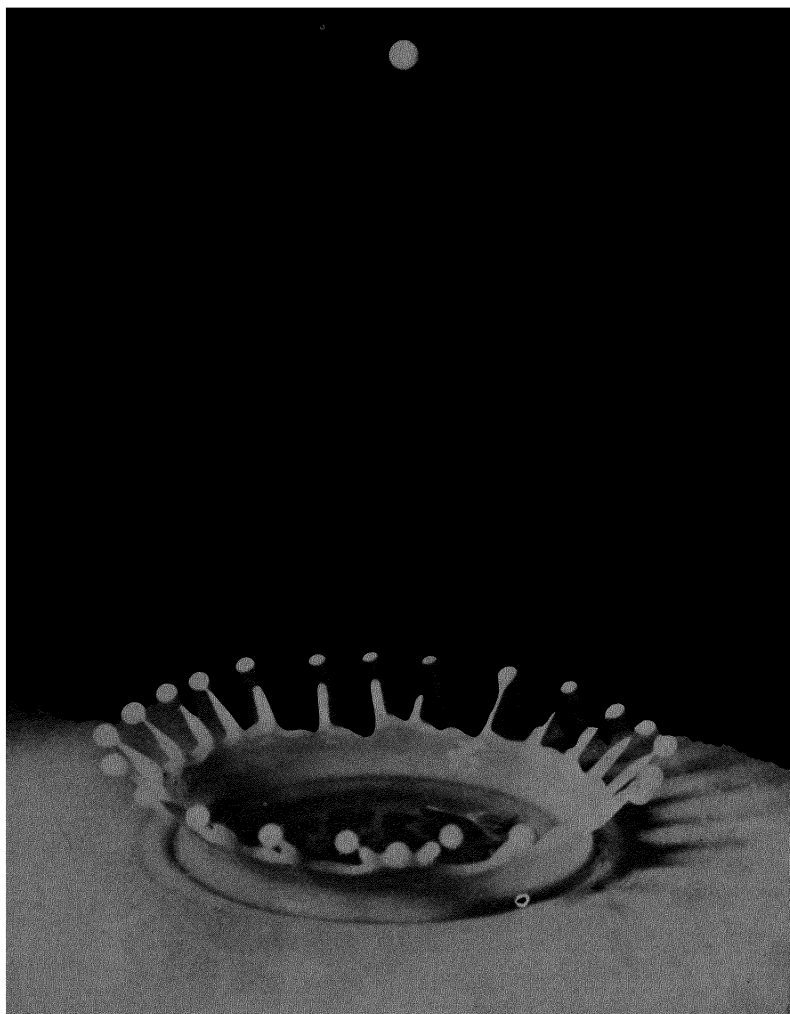
Thus we spend most of our lives on the Trivial Plane, and are only occasionally, in moments of elation or danger, transferred to the Tragic Plane with its un-commonsense, cosmic perspective. When we move on the Trivial Plane, the realities of the other embarrass us and we dismiss them as phantoms of overstrung nerves or adolescent effusions. When we move on the Tragic Plane, the preoccupations of the other appear as shallow, frivolous vanities. But there are exceptional circumstances when ordinary people are forced to live on the borderline of the two planes: for example, in periods of protracted physical danger or imminent death. Many

thousand members of the air forces in the Second World War led an existence on the line of intersection between violent death and the conventions of the Officers' Mess, which amounted to a constant tightrope walk on their own nerves. A few of them achieved through this experience a new equilibrium, a higher synthesis, epitomized in the books of men like Saint-Exupéry and André Malraux. Others lost their mental balance and broke down. But the great majority found a solution in projecting a trivial structure onto the Tragic Plane, in conventionalizing and banalizing Death itself by means of that curious schoolboy slang in which mortal crashes were referred to as "cheese" or "prang," and a friend's death or mutilation as, "He's had it." By this process of trivialization and smug understatement, the universe itself becomes a silly thought, eternity embarrassing, and infinity bad form.

The creative mind reverses this process. The mystic, artist, and philosopher are also condemned to walk the tightrope on the intersection line of the two planes. While the conventional soldier or adventurer eases the strain by projecting his trivial attitude onto the Tragic Plane, the artist proceeds the opposite way: he experiences the trivial in the perspective of the tragic, in the light of "eternity looking through time." And therein can probably be found the essence of the artist's approach. This interlacing of the Tragic and Trivial planes is implicit in all great works of art; it is the ultimate quality of the creative mind by means of which it is able to transcend the narrow limits of the self. And thus is man:

That great and true amphibium, whose nature is disposed to live, not only like other creatures in divers elements, but in divided and distinguished worlds.

APPENDICES



Reproduced by permission of Mr. Harold E. Edgerton

PLATE IV

APPENDIX I

A Note on Nature and the Visual Arts

I

A DETAILED analysis of the bisociative patterns in the visual arts and in music would require a volume as long as this, and must be left to others more qualified for the task. If the present theory should be found of some value, it will find its way into the various branches of aesthetics in due time. In this appendix we can do no more than give a few sketchy indications regarding its application to aesthetic experience derived from nature and the representative arts. All polemical references to other theories of aesthetics have been avoided, and the subjectively determined nature of the aesthetic experience (as opposed to the hoary superstition of beauty as an "objective quality inherent in things") has been taken for granted.

BISOCIATIVE PATTERNS IN THE EXPERIENCE OF NATURE

The starting point of the inquiry into the nature of a particular aesthetic experience must be the analysis of the fields which operate in the subject's mind when he contemplates a thing, or a multitude of things—for example, a landscape. It will be found that whenever an aesthetic experience occurs, the subject is never "single-minded," and that his awareness is suspended, as it were, between two distinct fields. The following experiment will demonstrate this point :

The object in the photograph facing this page is a crown made of candle tallow and wire—the kind of thing our Victorian forebears used to keep as objects of beauty in a glass cage. I assume that the

reader derives no particular aesthetic experience from looking at it.

The previous paragraph, however, has deliberately misled him. The plate was taken from D. W. Thompson's classic work *On Growth and Form*.¹ It is an enlargement of an instantaneous photograph of the splash formed by a milk drop falling on a hard surface. The white ball at the top of the picture is the next drop falling through the air. Nine out of ten persons looking at a photograph of this kind for the first time and *knowing* what it represents, will exclaim: "How strange! How beautiful!" The same visual experience however, when interpreted as a crown of tallow, will affect them as aesthetically indifferent, if not repulsive. The example illustrates how "meaning," or more generally an associative context F_2 , permeates the visual field F_1 , even if the experient is not conscious of it and believes that he experiences "pure form" detached from any meaning—a fashionable type of statement with the psychologically impossible implication that any perception can be isolated in the mind from the influence of past experience.

Effects similar to that of the photograph shown above are produced by close scrutiny of a snow crystal, or by the first sight of microscopic photographs of familiar objects. Usual reactions to the snow crystal are admiring exclamations about the "marvellous regularity" in such a tiny and apparently amorphous object: "How clever is nature," and so forth. Again, the sight of the same stereometric form, for example, a pentadodecahedron drawn on a drawing board, will be aesthetically neutral for lack of a second context—in this case the familiar sight of a watery snowflake. It is this familiarity of the snowflake or milk drop, contrasted with the mathematical regularity of its structure—the bisociation of the trivial object with natural law and cosmic order—which gives rise to the self-transcending emotion of the aesthetic experience.

The notion that nature is "beautiful" in a formal sense is a relatively new one. So is landscape painting. Even in Dr. Johnson's time, mountains were regarded as "rather uncouth objects." "Frown-

¹ New Ed., Cambridge, 1942.

ing" or "horrid" were the kind of adjectives the eighteenth century applied to precipices.² The further back we go in time, the less traces we find of the appreciation of the purely visual aspects of form and colour in inanimate nature, and the more we find perception imbued with functional, utilitarian and anthropomorphic notions.

Considering the bulk and value of Greek literature, and the artistic brilliance of Athens, the feeling for nature . . . was but poorly developed among a people whose achievement in the dramatic and sculptural arts has been unsurpassed; it is seriously lacking in Homer, even when he refers to the sea or to the famous garden of Alcinous, and it can hardly be said to enter Greek drama save in the *Oedipus at Colonnus* and in some of the lyrical choruses of Euripides. Indeed, the continent of nature had to wait for a thorough and minute exploration until the romantic movement of the nineteenth century; Byron, Shelley, Wordsworth, Goethe, first brought the ocean, the rivers, and the mountain ranges into their own. . . . For primitive . . . man . . . earth and sea are simply the perennial source of those material goods on which life depends, and mountain peaks are uninteresting and unattractive because they are barren and bleak. Not until the material means of existence became fairly assured . . . could nature . . . become the object of detached and impersonal contemplation.³

All this does not mean that man in earlier periods derived no emotional experience from nature. But his emotions had their source in a different field: that of supernatural powers and of animistic magic. The Sicilian straits were not perceived by Homer as a landscape, but as the seat of Scylla and Charybdis. Every single sea journey of Odysseus is bisociated in his mind with an Olympian intrigue between Zeus, Poseidon, and Athene. Mr. Babbitt, contemplating a snow crystal or Niagara Falls, is overwhelmed by what he calls "the mysteries of the universe" or the "wild majesty of Nature," manifested in and through the object before his eyes; Odysseus, looking at the rising sun, marvels at the doings of starry-eyed Athene. There is always a second field perceived through, or

² Cf. E. Newton, *European Painting and Sculpture* (London, 1941).

³ Listowel, *A Critical History of Modern Aesthetics* (London, 1933).

superimposed upon, the visual appearance of the object contemplated. Though the experient may be convinced that he is engaged in nothing but pure vision with his retina, he perceives, in fact, with the whole of his brain, and his perception is modified by the fields which operate in it: by resonances from his racial and individual past, floating images of touch and smell, kinaesthetic sensations of his own ocular movements and incipient muscular stresses. The aesthetic experience is always a sign that the object contemplated represents or symbolizes or expresses something behind and beyond its retinal image—exactly as the pigment on a canvas always represents something beyond its frame. In other words, the aesthetic effect of an object of nature depends on its representation in the medium of the mind, just as the aesthetic effect of art depends on the representation of the model in a material medium. This may explain the theories of some French authors, like Lalo, that man's aesthetic appreciation of nature is derived from his having seen landscapes in paint.

The painter, looking at a landscape or human model, sees it "in terms of" his medium—of stone, wood, charcoal, or pigment—and, furthermore, "in terms of" certain unconscious selective operators which determine the relevance of this or that aspect of the retinal image for his perceptual field: surfaces or contours, curves or angularities, ornamental or symbolic relations, and so forth. In other words, the seen object is transposed into the specific idiom which the painter uses; the primary field of vision F_1 ⁴ is projected on to a second field F_2 whose selective operator or grid is determined by the material in which he usually works, by the collective conventions of his age, by the personal idiosyncrasies which he has acquired, and so forth. This process of projection or translation may take place on various levels

⁴ Even the primary field of vision is not a mere mosaic of retinal sensations, but the product of a first processing through sensory organization according to the selective principles of "figure and background" and other laws of "Gestalt" cf. *infra*, pp. 402 f. It is a pity that owing to its main preoccupation with this lowest level of sensory organization and its relative neglect of the influence of past experience through the interaction of higher levels, the Gestalt school has so far made little contribution to the problems of aesthetics.

of consciousness. In a true bisociative process (as opposed to coldly intentional mannerisms) the two fields fuse so completely in the junctional object (as rhythm and content, metaphoric and literary meaning fuse in poetry) that the painter literally *sees* in terms of cubic forms, of the exaggerated and simplified relations of the F_2 field, just as the poet thinks in terms of imagery and metre.

In the mainstream of European painting, roughly from the high Renaissance to cubism, this second field, to which the retinal image is referred, is *also* of a mainly *visual* nature. Here the difference between F_1 and F_2 is that between "raw" vision and skilled, knowing vision with a selective emphasis on aspects considered as relevant.⁵

But a glance at Byzantine, pre-Columbian, or expressionist art is sufficient to show that the selective operator of F_2 is not always of a purely, or even mainly, visual nature. Whether Hamlet sees in the passing cloud the shape of a camel, a weasel, or a whale is determined by factors other than optical. The schizophrenic painter sees serpents, genitals, and archaic symbols budding out of every curve of an ornamental design. Cocteau produced an admirable series of drawings while he was being cured of his opium addiction: the organs and limbs of his figures, every fold of their clothing, every curve and angle was expressed in terms of opium pipes. The Byzantine artist did not care what visual impossibilities he committed in the interest of emotive expression. The Egyptian sculptors were content to make the size of the human figure proportionate to its social importance.⁶ For three thousand years Egyptian sculptors and painters produced not a single discovery in the technique of visual representation. They had no visual curiosity. The field F_2 to which the image was referred, was dominated by other than optical con-

⁵ We say "raw" in the sense of undigested or mentally unprocessed and not "naïve" or "primitive," for the reconquest of "naïveness" is one of the periodic revolutions in painting; when the organization of F_2 becomes too rigid, it is broken up and emphasis is shifted on to some earlier aspect of relevance. Though paleolithic man was intellectually primitive, his manner of seeing a bison is by no means more "naïve" than Matisse's.

⁶ In our days the same bisociative pattern is used by the caricaturist to achieve comic effects. As respect for the hierarchic order has changed into social malice, the emotive charge of the pattern has changed accordingly.

siderations. And during the whole Renaissance, up to the late Venetians, landscape was regarded merely as a stereotyped background to the human figure. Giorgione's "Tempest" is perhaps the first picture in which nature is seen in her own right as a source of aesthetic experience.

Thus, when discussing the aesthetic experience derived from the contemplation of nature, we have first to free ourselves from the period-bound and relatively new conception of form-and-colour, and nothing but form-and-colour, as the one source of the experience of "beauty." Recognition of the fact that the perceptual field F_2 was and is often dominated by nonvisual vector components, should not be confused with a "literary" or "intellectualistic" approach to art, and least of all with any theory of "narrative painting" in the Mid-Victorian sense. Every painting "narrates" the artist's visual experience as filtered and reflected by his mind. Needless to say, if the original experience was not of a visual but, let us say, of a verbal nature, it should be narrated in verbal and not in visual terms.

As the painter may be regarded as a pioneer of visual receptivity and experience, it is doubtful whether the average European before Giorgione ever saw "beauty" in nature as we understand it; and it is very likely that from the decay of antique art to the time of Giotto and Duccio no Western European saw beauty in the human body. This does not mean that man derived no aesthetic emotion from nature; only that it was of a different kind, derived from the intersection of the field of vision with a second field dominated by experiences other than purely visual. In Homer's mind F_2 is dominated by the Olympian powers; in the Byzantine mind, by a subtler consciousness of the divine; Kant's emotion on contemplating the starry skies "which fill the mind with ever-increasing wonder and awe" derives from the same bisociative pattern, the fusion of nature as seen, with the unseen supernatural principle; and at the end of the chain we have our aesthetic pleasure in the snow crystal. The mechanism is essentially the same as in the bisociative processes of illusion, rhythm, or poetic imagery: the trivial and familiar object is made

to fuse with the field of the universal and archetypal; and, as awareness remains suspended between the two, self-transcending emotion is steadily generated and expanded in the higher field. If the snow crystal, the milk drop, or the ripples on a lake represent cosmic order in miniature, oceans and mountains represent its power on a grandiose scale; and "represent" is meant here literally, referring to the projection of the visual image onto the archetypal field. Blake's *Gnomic Verses* have become hackneyed; but no two lines can so concisely express the bisociation between the trivial and the cosmic in the contemplation of nature than the famous: "Great things are done when men and mountains meet; this is not done by jostling in the street."

DIFFICULTY OF VERBALIZATION

Although bisociation with the universal or divine is the most powerful source of aesthetic experience of nature, it is not the only one. Poetic imagery would be insupportable if it were entirely based on the tragic, the absolute, and the like heavy artillery; and nature would be equally unbearable if it consisted entirely of glaciers, volcanoes, Grand Canyons and Niagara Falls. But we have seen how light and graceful images, which are apparently quite unconnected with the fatal absolutes, become, when we look closer, transparent to some dim outline of an archetypal experience. Similarly, whenever we experience beauty in nature, we perceive some reflection, however indirect, some echo of an echo of the oceanic feeling. In poetry, the medium which conveyed that echo was the juxtaposed field F_2 of a metaphorical figure; and we said that, in order to give rise to aesthetic experience, the two fields must form an "ascending gradient" of emotional values (compare Chapter XX). In the contemplation of nature, the process is essentially similar, but its analysis is made much more difficult by the fact that the mediating field F_2 in the experient's mind, onto which the visual image is projected, is usually *not verbalized*. We said repeatedly that we see nature "in terms of" a selective field attuned to this or that relevant aspect; but these "terms" are not verbal terms, and if, for the sake

of analysis, we try to verbalize them, the result is always a gross "clumsification," a medley of clichés and psychological jargon.

Thus F_2 may be dominated by *emotive* vector components, and our vocabulary is extremely poor where emotion is concerned. If we say that the field F_2 responds to the sight of the ocean with associations of "eternity," "infinity," and so forth, this sounds as if we were referring to *verbal* associations. Such words *may* present themselves to the experient, but the words are the least important part of his experience and detract from rather than add to its value. However, as analysis is restricted to the use of verbal symbols, we have no other choice but to refer by words to processes which in the experient's mind are not crystallized into words. This proceeding is legitimate as long as the reader is able to identify from his own experience the nonverbal processes to which our verbal symbols refer. Much confusion in aesthetic theory is due to the fact that artists and other people whose minds work mainly through nonverbalized processes, refuse to admit the legitimacy of verbal reference to these processes. The artist who declares that beauty is an "ultimate quality," an "irreducible experience," an "intrinsic value," and that that's all there is to be said about it, may as well declare, pointing to a gramophone record: "This is not No. 734/8, it is just tra-la-la-la, and that's all."

EMPATHY AND KINAESTHESIA

With this warning in mind, we may briefly mention some further factors which, acting as selective operator-components of F_2 , determine the aesthetic experience. Among these, real or imagined movements of the eye and subliminal muscular impulses and stresses often play an important but mostly unconscious and un verbalized part. To ride a bicycle or play the violin requires great skill and "muscle-knowledge"; but it is a knowledge which cannot be verbalized, and most of the perceptions of minute stimuli during the process, as well as the responses to them, take place on an unconscious level. Among all the senses, the kinaesthetic is the most elusive to verbal formulation, and yet, combined with projective empathy,

it may be an important factor in perception—so much so that the German school of Lipps, Groos, and others based their whole theory of beauty on it; and Vernon Lee, the main exponent of the “empathy” school in England, summed up aesthetic experience as primarily “the attribution of our own modes of dynamic experience, motor ideas, to shapes.” In other words, “we attribute to lines not only balance, direction, velocity, but also thrust, strain, feeling, intention and character.”⁷

Less known are the important experiments carried out by Jaensch,⁸ who was able to demonstrate, *inter alia*, that the eidetic image of a straight horizontal line will expand considerably in length if a pull is exerted on the horizontally outstretched arms of the subject. This proves that not only does vision give rise to kinaesthetic sensations, but vice versa, the feeling of muscle tone and stresses also influences vision. The conclusion of the considerable experimental work done in this field seems to be that man *sees not only with his eyes, but with his whole body*.

One of the merits of early behaviourism was to show that what we loosely call “thinking” is a continuous flow of physiological processes, involving, apart from the brain, sublaryngeal movements (inner speech), visceral-emotive activities, kinaesthetic and motor innervations. In the same way, vision is a process which cannot be isolated from other physiological activities—from cortical processes both verbalized and un verbalized, kinaesthetic and motor stresses, innerervations of the senses of touch, weight, and temperature, visceral reactions. The great influence which Seurat’s system of “divisionism” exerted on painters of his generation proves that these factors have an immediate significance not only for the psychologist, but for the creative artist as well. In Seurat’s system horizontal or “gently” ascending lines and “cool” colours are expressive of calm and content, “swifter” and more “animated” lines and “warmer” colours of gaiety, and so forth. More recently Juan Gris has pointed out the

⁷ Vernon Lee, *Beauty and Ugliness, and Other Studies in Psychological Aesthetics* (London, 1912).

⁸ E. R. Jaensch, *Eidetic Imagery* (London, 1930).

expansive and contractile character of forms,⁹ the temperature equivalence and gravitational tendencies of different combinations of form and colour, the physiological effects of various types of symmetry, and so forth. Such systems have, of course, little objective value, and are mostly based on personal idiosyncrasies. Their interest is not that of a synthetic guide to painting, but of an indication of the extreme variety of factors which determine the pattern of the perceptual field F_2 . The most striking data are again derived from pathology. Wolberg has demonstrated on a schizoid patient under deep hypnosis the extraordinary intensity of unconscious symbolism attached to colours.¹⁰ In this case early childhood experiences were the formative factor. Valentine, on the other hand, quotes the case of a man blind from birth who, after a successful operation, felt intense pleasure at the first sight of red, and exceedingly sick at the first sight of yellow.¹¹ Man not only "thinks with his hands"; he often "sees through his bowels."

We conclude, then, that the statement "This tree is beautiful" signifies that the visual image of the tree has fused itself with some operative field or fields of higher emotive value, and that an ascending gradient has thus been formed for the self-transcending experience. Contemplation of a landscape, even of a single tree, may, like a poem or a portrait, give rise to a whole series of bisociative processes. However, while in a literary narrative these may be considered separately with relative ease, the taking in of a view with apparently one sweep of the eye causes the whole series to blend into one near-simultaneous process, so that it is extremely difficult to sort out the various bisociative patterns which went into its making. The trouble with experiencing visual beauty, and also its fascination, is that so much is happening in us at the same time.

If, for example, the tree in question be a willow on the bank of a quiet brook, it is not difficult to trace the source of the aesthetic experience to the kinaesthetic sensation of drooping, loose limpness,

⁹ "On the Possibilities of Painting," *Horizon*, London (Aug., 1946).

¹⁰ Wolberg, *Hypnoanalysis*.

¹¹ Quoted from L. A. Reid, *A Study in Aesthetics* (London, 1931).

the gentle draining of tension, combined with the hypnotic effect of the brook's murmur.¹² If the tree happens to be an old oak in full foliage, the experience will resolve itself into a whole series of bisociative processes. In some subjects, the patterned symmetry of the foliage will evoke an echo akin to that of the filigree structure of the snow crystal—reinforced by the fact that its regularity is not a simple and obvious one, but implicit in a complex pattern of variations, like rhythmic beat in metre. This aspect will again combine with other archetypal or dim mythological echoes, evoked by the age and massive vigour of the trunk; and further with the particular organic resonance in us with the process of "branching out" as such. (This may be observed in the curious vegetative sympathy which we feel in looking at the unearthed roots of a plant, at charts of the central nervous, or of the circulatory system: the "heart-tree" with its complex tapering from the aorta to the capillaries; even the attraction of genealogical "family trees" may at least be partly due to this factor.) Combine all this further with the kinaesthetic responses to "looking upward" into the crown of the tree, and the sky beyond it; with the emotive effects of colour and light; with some specific attunement of the subject's vision to seeing "in terms of" a favourite painter, or a favourite tree of his childhood under the nursery window. In short, the difficulty in analysing the experience of beauty is not due to the irreducible quality of the experience, but to the wealth and often unconscious character of reductive possibilities, of the bisociative patterns contained in it. But whichever of the threads in the complex pattern we follow in the analysis of an aesthetic experience—be it the patterned order of the foliage, or the age and potential immortality of the trunk, or the aspect of "branching"—we shall always find that the path ascends towards an unexpected view of an archetype.

¹² As pointed out before, straight verbal references to un verbalized experiences are bound to take the form of clichés.

THE HUMAN BODY: FORM AND FUNCTION

One glance at the bloated Venus of Willendorf should suffice to convince even the last doubter that the adjective "eternal" is singularly ill-placed before "beauty" in so far as our appreciation of the human body is concerned. It is less generally realized that not only the aesthetic norms of proportion, of the distribution of fatty tissues, etc., change according to period and culture pattern, but also our whole manner of seeing the human frame according to our ideas about its purpose and function.

This criterion of "function" as a selective operator in the perceptual field F_2 is of great importance for the visual arts; hence, to avoid misunderstandings it should be made clear that we use the term "function" in the dictionary sense as referring to a "mode of action by which" a thing "fulfills its purpose." The only snag with this definition is that it takes for granted that we know what the purpose of the thing in question is. Now if the thing is a locomotive, the answer is clear; but the purpose of the thing called a human body is open to various interpretations. And according to which interpretation of human purpose we accept, our ideas of its function will change, and our manner of seeing the human body in its functional aspect will change accordingly. In the drawings of some lunatics, adolescents, primitives, and lavatory-wall artists, the dominant functional aspect is indicated by an enormous phallus or vulva, with the remainder of the body only given as an uncertain outline. In Egyptian carvings the human figure functions as part of a funereal or state procession or other ceremonial occasion. In its total indifference to any other visual aspect, to expression, movement, colour, and even to the way the eyes are set into the face, Egyptian art is more single-mindedly functional than any before or after. In the golden age of Greece, the human body is seen under a totally different aspect, that of its *physical* function: in throwing a disc, tying a sandal, or simply lifting an arm; vision is attuned to the play and coordination of muscles; and by the criterion of perfect physical function excluding all spiritual

purpose, the curve of the buttocks is as important as that of the brow. In Byzantine vision the body functions as an indifferent and rather awkward shell of the spirit; and if the spirit commands the saint to bend his head back and gaze rapturously at the sky, the artist has no visual qualms in breaking his neck and letting the body float upward with all limbs out of joint—for the sake of functional perfection. Renaissance man rediscovered the body's physique, and gradually learned to see it under the additional and simultaneous aspects as the carrier of an individual head, and hence of an expression and mood; and further as an appearance which reflected light, radiated colour and, when severally grouped together or placed into a landscape, formed composite patterns and designs. For the courtiers of Louis XV, the principal function of human bodies was to play, suitably covered and uncovered, hide-and-seek between trees and bosquets, and to fall into each others' arms. For the impressionist, their function was to demonstrate the luminous continuity of all visual appearances; for the cubist, to prove God's preference for cubes; and so on.

All representative art is largely based on the bisociation of form and function; and which functional aspect dominates the vision of a period or group depends ultimately on its conception of the purpose and meaning of human existence. Accordingly, its norms of beauty will always reflect the archetype of some kind of functional perfection: the rigid dignity of Pharaoh, through whose eyes eternity looks in stony silence at time; the play of muscles in the Greek adolescent's perfect anatomy; the spiritual symbol embodied in the Byzantine apostle; the perfect dissolution of the body into geometrical form or luminous surface continuous with its surroundings. Whichever function is regarded as dominant at the time, its field acts as a filter through which the particular appearance is seen as a pattern of general significance, as an embodiment of some universal law or meaning.

FORM AND FUNCTION IN MAN-MADE OBJECTS

All interpretations of function have a tendency to raise totalitarian claims, and to lead to the neglect of all other functional aspects. Greek vision is indifferent to personal expression, Byzantine to anatomy, impressionist to contour, Chinese to shadow. This indifference is the consequence of a single-minded attunement of attention; hence, when looking back from our different viewpoint at an Egyptian relief or a Byzantine icon, we have an impression not of imperfection, but of a perfection aiming in a direction different from ours. The distortions of the Byzantine mosaic strike us not as faults, but as the result of a strange absent-mindedness of the artist—which is the inevitable concomitant of his single-mindedness. But it is quite a different matter when form is consciously used to *disguise* function. Here the artist is not indifferent or blind to some functional aspect of nature, but only too conscious of it, and anxious to cover up his awareness. He is not absent-minded, but a hypocrite. The Romanesque sculptor formalizes the body in flowing draperies which fit the architectural rhythm of the columns, but he is not ashamed of the body, and frequently takes a gargantuan delight in its most carnal functions. The Mid-Victorian artist or craftsman is a prude, uncomfortably intent not on bisociating, but on dissociating his vision from the facts of life. He is a prude with regard not only to sex, but to all other utilitarian functions. The cuspidor must be disguised as a nymph, the mustard pot as a decapitated frog; every practical purpose is regarded as base, and camouflaged in layers of dusty plush. Plaster poses as stone, and stone is treated like modelling clay; costume is no longer formal drapery or a stylized variation of the theme set by the body's curves, but a shapeless swathe to smother and deny it; nature is hushed up and a filmy cataract dims the eye. Denial of function becomes the norm of beauty; the more unnecessary a form, the more irrelevant to purpose, *plus ça fait riche*. One may ask how it was possible that in the age of imperialist conquest, when human purpose was defined by the concepts of the Survival of the Fittest and the Struggle for Existence,

people surrounded themselves with velvet, plush, and knick-knacks on the imitation-marble mantelpiece; how art could become so completely separated from social reality. The answer is probably that the two were related but by a negative sign: the painter, the architect, and the interior decorator had to camouflage and hush up the dreadful discoveries that man was a monkey and the Stock Exchange a continuation of the jungle. Similar developments of taste can be observed in all parvenu classes and social groups who, consciously or unconsciously wishing to forget and cover up the bitter struggle underlying their achievement, accordingly identify utility with poverty and ugliness, beauty with the superfluous and a-functional. The earliest example of this phenomenon are the truly Victorian horrors described by Petronius in the "Supper of Trimalchio," and the latest, the developments in the Soviet applied arts.

After the First World War the pendulum swung wildly in the opposite direction. The concept of purpose and function became narrowed down to the engineer's interpretation of it, and as attention became fascinated by speed engines, the term "functional" came gradually to be synonymous with "streamlined"—which soon lost its concrete meaning as a shape calculated to cause the least resistance to the progress of a solid in the surrounding medium, and began to operate in the public's mind as a genuine criterion of aesthetic value. Houses, ashtrays, teapots, armchairs, mannequins, and film actresses were considered beautiful if they were so shaped as to suffer the minimum damage if hurled through the air or towed through the water by a speedboat. Illustrated magazines of architecture or the applied arts in the late 1920's gave the impression that all the objects in them were surrounded by a roaring slipstream.

Streamlined chromium chairs are now beginning to look slightly ridiculous to us, and the return of a taste for blowsiness indicates that aerodynamic considerations are no longer the only ones applied to the female form; and yet the whole movement was more than a passing craze of snobbery. When its exaggerations are discarded, "functionalism" in its specific contemporary sense is likely to retain for some time an influence on the unconscious filter mechanism in our

vision, and hence on our aesthetic norms. For after all, our obsession with speed and the conquest of space emphasizes as valid an aspect of the human purpose as the Egyptian obsession with the tomb and the French impressionists' obsession with the universe of colour and light.

But if each interpretation of function reflects an archetype of human aspiration, the totalitarian claims which it raises sooner or later transform single-mindedness into one-sidedness, creative bisociation into the sterile mannerism of routine. This was the ultimate fate of all successive schools of art in history; and the very narrowness of the engineer's utilitarian concept of function foreshadows its early demise—for the engineer is no longer a humanist as he was in Leonardo's day. "Functionalism" in the contemporary sense has attuned our vision to preferring simple to elaborate form, the explicit to the implicit, diffused lighting to the interplay of light and shadow. It has banished all twilight and ambiguity from vision. But simple forms are no nearer to organic law or universal truth than elaborate ones, and one of the sources of aesthetic experience is precisely the discovery of the implied symmetry in the elaborate design of the snow crystal or the foliage of the tree; of unity in variety, of rhythm in metre. Explicit geometrical form is aesthetically indifferent, indeed, boring like a solution without a riddle, or the detailed explanation of an epigram. As for twilight and ambiguity, they are inherent in man's relation to the universe, and eminently functional in his fate. Finally, the functions of a house or of a saltcellar are not exhausted by the requirement of protecting man against the weather or of being a receptacle for salt. Both function as parts of his environment which determines his thoughts, moods, and actions. And this second function is as functional as the first. Simplicity of form, or any other criteria of fitness for the first purpose, do not make an object more fit for the second. Benvenuto Cellini's golden saltcellar for Francis I is a source of aesthetic pleasure as well as a receptacle for salt. For—and this is the essential point—as it only functions as a receptacle of salt for a few seconds during a long meal, what is it doing the rest of the time? Whereas

in a living organism the function of all parts is always defined by the whole, *no object made by man for a given purpose is all the time and in all its parts defined by that purpose.*

The saltcellar is most of the time "functionally dead." And since Gothic architecture invented the vaulted roof supported by pillars instead of walls, three-quarters of the material which makes a church serves no practical purpose, is quite unnecessary, and functionally dead. The same is true of a large proportion of the building material in a steel-framed house. But while the Gothic architect achieved a synthesis between the two functions by transforming his superfluous walls into frames for stained-glass windows with a purely aesthetic purpose, the modern architect, even if he aims at aesthetic effect, is still a victim of his engineering obsession. He replaces the useless walls with big glass panes flooding the rooms with harsh light, thus transforming an interior into an exterior *ambiance*, and he gives his nonfunctional dummy walls a sternly "functional" façade which is pure pretence. We are victims of the engineer-architect's bluff, who makes our eyes believe that in a modern building everything has a well-defined purpose. In fact, it has not, and the façade of a Renaissance building is neither more nor less functional than a streamlined dwelling-cube.

Gothic stained-glass windows and Renaissance saltcellars are a synthesis of two functions alternating in space and time in the same object. Victorian saltcellars and mustard pots are not a synthesis, but a camouflage of function. That the former were hand-made by artists, the second mass-produced, is not the cause, but the effect of the period's attitude to aesthetic value. The hand-stitched anti-macassars in grandmother's drawing room were no more attractive than the mass-produced china frog whose gaping mouth functioned as an umbrella stand. All form served to hide purpose; even the tea cosies managed to look like maternity frocks.

The wild swinging of the pendulum, from form as camouflage, to form as the slave of utility, reflects opposite attitudes to human purpose on the same materialistic plane. But the signs of vision developing in new dimensions are not lacking.

THE ROLE OF SENSORY AGREEMENT

Certain types of stimuli—sounds, tastes, smells—are more agreeable to the organic dispositions or sensory attunements of a subject than others. The word “agreeable” which suggests agreement, concord, is deliberately used here as distinct from “pleasing,” which suggests pleasure in the usual, visceromotoric sense and is a frequent, but not a necessary accompaniment of sensory agreement. Insufficiency of discrimination between these two processes which belong to different levels of neural organization, is the main source of confusion in aesthetic theories of the hedonist type. Needless to say, sensory agreement is frequently correlated to pleasure-reactions of the autonomic nervous system, and often cannot be distinguished from them in the resulting experience. But this is the case with all complex reactions which involve different levels of nervous function, and does not free us from the obligation of discriminating between the various factors which constitute the process.

Some of our sensory preferences are conditioned by experience, in which case they usually become intimately associated with visceral and other reactions; others are constitutional. Goldstein¹³ calls them the organic “constants of individuality” which act as “selective and accentuating factors upon the experience of the individual and the stimuli by which he is affected.” They must be regarded as selective operators which function on the lowest level of nervous organization, in the raw material of sensory experience before it has become “digested,” that is, transformed on higher levels of integration. Thus, the immediate effect of periodic sounds (clangs) is more agreeable to the ear than aperiodic noises, and among the former the fifth or octave is again more agreeable to the European ear than, for example, the second. The necessity of distinguishing between this kind of sensory agreement on the lowest level, and the emotive pleasure derived from the aesthetic experience of a complex stimulus pattern as a whole, becomes particularly clear in this

¹³ Goldstein, K., *Human Nature in the Light of Psychopathology* (Cambridge, Mass., 1947).

example. For the sensory preference for concord over discord when heard in *isolation* has only a very indirect bearing on the pleasure derived from hearing a Beethoven symphony *as a whole*. There is no quantitative proportion between the number of harmonic chords and the pleasurable-ness of the whole. In fact, the alternation of concords and discords, of sensory agreements and disagreements of various shades to the part-stimuli, is merely one of the relevant patterns superimposed on other patterns: rhythm, melody, counterpoint, and so forth, in the web of the whole.

Selective operators or "individual constants" function not merely in the fields of sensory perception, but also as patterns of "preferred behaviour." Individual gait, the position in which one holds one's head, the posture in which one prefers to sleep, all tend towards a maximum agreement with organic disposition. If external influences cause a deviation from the pattern, it will automatically right itself after a while. An impressive example of what one may call a collective taste for certain forms of motor behaviour is the way in which most people point with their arm at an object, described by Goldstein. If the object is in front and slightly to the right, the person will point only with the extended arm, this arm forming with the frontal plane of the body an angle of approximately forty-five degrees. If the object is moved more to the right, the person will start turning his trunk to the right so that the angle between arm and body is still about forty-five degrees. If the object is laid straight in front of the person, he will turn his trunk to the left, and the angle will again be the same. For obvious anatomical reasons the angle of forty-five degrees is the most "agreeable" in this performance. We may add to Goldstein's observation that most people, when asked to draw a man pointing at an object, will unconsciously draw him in this position; and vice versa, the drawing of a pointing man will, other things being equal, be the more "beautiful" the more it approaches the "preferred performance."

The connection between this selective motor taste and aesthetic judgement based on kinaesthetic empathy is obvious. The most important factor determining postural preferences is bodily *balance*,

and accordingly balance is an important criterion of aesthetic agreement. A leaning tower, or a big head on a thin neck, are disagreeable sights. But here again it should not be forgotten that sensory agreement or disagreement is merely one of the relevant aspects of the aesthetic experience. Inverted topheavy forms may in a picture combine with forms in repose into a total pattern with a "balance of a higher order," in which the parts with positive and negative sensory balance have the same function as concord and discord in a musical theme, beats and missed beats in a rhythmic pattern. Thus, a series of inverted lopsided cones, each of which is in itself a source of sensory disagreement, may constitute a rhythmic pattern or a balanced colour scheme, and thus be a source of aesthetic pleasure.

As we saw, when discussing empathy, kinaesthetic values of agreement are transferred from living organisms to inert solids, and further to two-dimensional forms and single lines. Vertical and horizontal lines and right angles are so marked by sensory preference that an angle of, say, ninety-four degrees, is automatically qualified as an imperfect or bad right angle; patients with brain lesions whose sensory organization is more biased by their "hedonistic" preferences than ours, are sometimes incapable of noticing a deviation even of ten degrees from the horizontal or vertical.¹⁴

The painstaking researches of the Gestalt school have yielded a wealth of material about sensory organization, particularly in the visual field. Before the visual raw material becomes subjected to the associative influences of past experience, it undergoes a first "processing" by sensory operators on the lowest level. The retinal mosaic is reorganized according to the "figure-background" scheme. A broken contour is perceived as an incomplete figure; "lopsided" shapes are, as the very term indicates, not perceived as shapes in their own right as they are visually given, but as deviations from imagined symmetrical shapes which are visually not given but nevertheless act as norms of sensory preference. Further selective criteria

¹⁴ This may be called a pathological extreme of "wishful seeing" analogous to the extreme of affective or "wishful" thinking in mental derangement.

of sensory agreement are "good continuation," "good closure," squareness, circularity, regularity, symmetry, and so on.¹⁵

An example of how these factors affect aesthetic appreciation is the criterion of "good continuation" which we unconsciously apply both to composition in painting and to natural landscape—for example, a mountain range. In Andrea del Castagno's "Last Supper" each of the twelve apostles forms an isolated island; in Leonardo's "Last Supper" they form groups of three, which again are inter-related by connecting gestures. In Rubens's "Descent from the Cross" all the nine figures are intimately combined into one continuous flow of curves. If Flemish baroque may serve to illustrate the principle of "good continuation," the Florentine school's preference for the triangle or pyramid in composition may be taken as an illustration of the principles of "regularity" and "good closure."

The investigations of Wertheimer, Köhler, Koffka, and others have made at least a beginning in the analysis of sensory preferences regarding *form*. But the analysis of sensory reactions to *colour* is still in an embryonic stage; and as for theories about the combined effects of form and colour, they are mostly wild and subjective generalizations. If we speak of "harmony" and "balance," referring to form, we know at least roughly what we are talking about, as kinaesthesia, symmetry, implicit regularity, closure, and so forth, may serve as partial explanations of our statement. But this is hardly true of statements where "harmony" and "balance" refer to combinations of form, colour, and luminosity.

One, and probably the main, reason for this is that analysis of sensory preferences can obviously only produce results of some value if it can demonstrate preference patterns which are "objective," that is, shared by a great number of people. And obviously a given preference pattern will be shared by more people if it is inherent in our organic constitution than if it is acquired through environmental contacts. All goats seem to have a hereditary predilection

¹⁵ Our disagreement with the physiological interpretation of these phenomena by the Gestalt school (see Vol. Two) has, of course, no bearing on the great value of the experimental material which it has assembled.

for salt, and all human babies for sweet tastes, and this fact may serve as an objective pillar in a theory of culinary aesthetics for babies and goats. We are also on fairly firm ground when we say that clangs are more agreeable to the human ear than noises; but already in the scale of preferences regarding intervals, the Chinese seems to differ from the European, and the objective value of our observations will be accordingly restricted. In vision, some of the Gestalt preferences mentioned seem to be firmly grounded in the human organism, while others may be based on, or modified by, individual experience. But as regards colour, sensory preference seems to vary from individual to individual. Even in the case described by Valentine of the man who, blind from birth, found after a successful operation the first sight of red pleasing, of yellow nauseating, we cannot attribute any objective value to this discrimination, though it was certainly not due to acquired associations. On the other hand, Wollberg's experiments in deep hypnosis have shown with what alacrity colour sensations become unconsciously associated with emotive experiences, and how these associative attunements can be entirely modified by suggestion. In a single sitting, Wolberg reconditioned his patient's reactions to red from half-conscious anxiety to a feeling of elation. Against this extreme individualism of colour preferences, statements like "green is a restful colour" are too vague and uncertain to have much objective significance.

Nevertheless, there exist some common denominators in the organization of human colour perception. Effects of contrast along the borderlines of coloured surfaces, afterimages in complementary colours, the fairly general "temperature values" of colours are examples of selective sensory attunements not so much to individual colours, but rather to relations between them, which may serve as points of departure for a future science of the function of colour in aesthetic experience.

To sum up: organic preferences, and other forms of sensory agreement, are a relevant aspect of aesthetic experience, but merely one among others—like function, or verbalized and un verbalized associative responses. Sensory agreement and disagreement with

parts or aspects of the whole have no cumulative influence on the pleasure-tone of the aesthetic experience, but are integrated into patterns, just like values of luminosity, or stressed and unstressed syllables in metre. The "pleasure" derived from sensory agreement is of a different quality, pertaining to a lower level of nervous function, than the self-transcending pleasure derived from the aesthetic experience as a whole. A sensory preference for sweet over acid tastes does not imply syrup as an ideal of culinary perfection; and works of art composed almost entirely of parts which by themselves would cause sensory disagreement, like a chromatic fugue by Bach, or whose subject matter is distasteful, like Goya's "Disasters," nevertheless give rise to aesthetic pleasure of a high order.

The solution of this apparent paradox is that "pleasure" is, as we saw, not an emotion,¹⁵ but an indication of the satisfactory progress of an emotive impulse. Accordingly, "pleasure" has no feeling-colour of its own, but indicates darker or lighter shades, as it were, of the emotional colour to which it is attached. The pleasure derived from the satisfaction of the self-transcending tendencies is of a quality entirely different from the pleasure derived from the self-assertive impulses. The ascetic mystic derives self-transcending pleasure from the painful thwarting of his self-assertive impulses. The artist and his audience derive aesthetic pleasure from experiences which under other conditions would be distasteful to them. Hedonism, that is, the thesis that the pleasure derived from the realization of impulses is the final determinant of all conduct, can serve as a guide in aesthetic and ethical theory, but only if it takes into account both the self-assertive and the self-transcending impulses in man's polarized nature. If it only recognizes the first, its effects on ethics will be disastrous, its aesthetic sterile and philistine.

II

So far we have only considered the selective operators which function in the *subject's* perceptual field F_2 . We must now turn to F_1 that

¹⁵ Cf. Chap. XV.

is, the qualities or relations in the *object* which, relative to a given F_2 , facilitate or obstruct aesthetic experience. In other words: What are the attributes that make a natural object or a work of art appear more or less beautiful to the subject, whose taste and manner of vision are assumed to be determined by his period and pattern of culture?

For convenience' sake, we shall again group our criteria according to Originality, Relevance, and Economy (or Implicitness). Alternative methods of grouping are of course equally possible; we make for ours no other claim than that of convenient headings.

At first sight it might seem bewildering to attribute to nature "originality" and "economy." But we are speaking of aspects of nature as seen by a given subject within a given perceptual field. For the person living in the temperate zones, the sight of the aurora borealis presents a quality of surprise and *originality*. And the repetition of form in the ripples of a sand dune appears to us as a pattern *implicit* in the variations between individual ripples, not explicit as in a geometrical design.

ORIGINALITY

Originality or simply newness of a view as a source of aesthetic experience is at the basis of the whole tourist trade. Almost any new landscape is enjoyable, and almost any view becomes stale after a while. The first view of an Alpine village absorbs all our awareness and emotion in the virginal bisociation of pure vision and archetypal response. But after a week in the village, once we know the height of each peak, how much the guide asks for hauling one up, and that the blue farm under the white glacier sells black-market eggs at a shilling apiece, vision has lost its virginity, has united with a functional field, and the archetype has to look for a new bride.

RELEVANCE:

a) The Idea of Perfection

The experience of beauty will only occur if the object presents some "junctional" aspect with a mental field of a high self-transcending value and an "ascending gradient" can be established. In other

words, the view of the object must be relevant to some self-transcending impulse in the subject.

Now there is hardly an object in nature, from the spiral nebulae to a milk drop, without aesthetic relevance for some type of mind. The problem of perfection, the question: What makes one object appear more beautiful than another in the eyes of a given person when both objects compete in the same field of relevance? can only be answered in a negative way—the absence of irrelevant elements. This seems a circular argument, but the difficulty is mainly one of verbal expression. For, as emphasized before, the selective operators of F_2 are mainly of a nonverbal nature, and their criteria can only be verbalized in a grossly oversimplified way, or in terms so vague and ambiguous as to be meaningless; whereas what is *rejected* by the selective operator as irrelevant or “faulty” is much easier to name—all definition proceeds by elimination. I cannot exactly define in words my ideal of a beautiful face or flower bed, but I can state that hairy warts, and greasepaper littered between the plants, and a great number of other things appear to me as elements of imperfection.

But, apart from the difficulty of verbal definition, the ideal of perfection within a given norm of relevance is, as a rule, not even visually defined. If the circle is my idea of perfect regularity, I will call squares and ellipses less perfect, but there still remains an infinite variety of circles according to size, colour, retinal position, and so on, which all comply with my ideal—and not only in verbal, but in visual terms. That is so not only because I cannot *describe* the exact position, size, and so forth of the ideal circle, but because a great many of them are also *visually* equivalent in their perfection. And the same applies to flowers, trees, mountains, landscapes—except that they offer an even greater number of combinations of equal aesthetic value. Aesthetic value of any type is, we said, always the echo of some archetypal relation. But this echo merely determines the pitch of resonance, as it were, without the timbre, or the key without the tune; it rejects false notes but leaves an infinite variety of the correct. Our idea of beauty must not be represented as a linear

curve approaching an asymptote of perfection, but rather as a fine-meshed filter or sieve which only lets a certain type of relations pass, and rejects all others. According to the type of the filter, our norms of beauty may be extremely rigorous, and yet at the same time extremely tolerant of all variations which fit the filter. The mathematician will say that relative to a given norm of beauty there may exist an infinite number of "perfect" objects, whereas the number of "imperfect" objects will be "infinite of a higher class."¹⁶

These considerations are less abstract or metaphorical than they may appear. The theory of the operative field as the basis of mental events, and its neurophysiological correlate of selective resonance, have a direct bearing on the subject. For it follows from our theory that a mental event, a percept or concept or memory trace, can not be defined as a discrete unit, only as a member now of this, now of that field according to its various "aspects" or "contexts," that is, to its various attunements or neural pitches. And, accordingly, the ideal of perfect beauty cannot be mentally represented as a definite structure, only as the selective matrix or "pitch" of a field. The difference between the Platonic and the archetypal¹⁷ idea of perfection is that according to the first, the shadows in the cave are supposed to reflect the idea of Perfection particularized in concrete forms, whereas in the second they are patterns, rhythms, and relations which reflect patterns, rhythms, and relations of a more universal nature—echoes of echoes in an infinite series. The Platonic idea is a particularization, the archetype is a generalization. The visual plausibility of Plato's metaphor has made us forget the preposterousness of the idea of the procession just outside the cave, carrying duplicate models of everything, from Charity to Rolling Pins. Metaphors can play havoc with thought, as the "clockwork-

¹⁶ The same relation holds, e.g., between the infinity of commensurable and the "infinity of a higher class" of incommensurable numbers. And the proof of the incommensurability of $\sqrt{2}$ for instance rests on a *reductio ad absurdum*, i.e., again on a process of elimination.

¹⁷ It should be repeated that the term "archetype" is used in this book in a sense somewhat differing from Jung's.

universe" and the "human machine" prove. The Platonic spook of Perfection has haunted aesthetics for many centuries, and is still not completely exorcized.

b) Simplification and Exaggeration

Simplification and Exaggeration have obviously the same function in the "technique" of nature as in art. The aesthetic attraction of oceans and mountains is partly derived from the overdose of the relevant quality in them; the attraction of deserts and steppes from the absence of irrelevant disturbing elements. The language of such momentous statements of nature is *Yea* and *Nay*; their message the opposite of the snow crystal's. But, when too explicit, the message has the effect of an overstatement; nothing is more boring than paintings of romantic mountain storms and shipwrecks. To be effective, nature, like the painter, must act by contrast and other techniques of implication. It must find the synthesis between exaggeration and economy of means.

ECONOMY (IMPLICITNESS)

"Do not be an art critic, but paint; therein lies salvation," Cézanne wrote, when he was sixty-five, to Émile Bernard. Although painters have sometimes liked to indulge in theorizing, particularly in nineteenth century France, Cézanne's voice two years before his death expressed a more authentic truth: the biological rivalry between the eyes and the vocal cords. Visual experience cannot be verbalized without major impoverishment; symbolic experience and abstract truth cannot be visually represented without violent distortions. This difficulty of translating experience from one field into another may be called the "*idiomatic predicament*" of aesthetics. A second major difficulty derives from the fact that objective analysis must always aim at making implicit part-conscious processes explicit and fully conscious, while artistic technique depends on the appeal to the unconscious, the hint, the implicit allusion, and thus works in the opposite direction. Analysis destroys the re-creative process by making it superfluous; aesthetic

creation, in shrinking from explicitness, tends to elude the analyst who, as soon as he solved one riddle, is faced with the next one. This striving in opposite directions may be called the "*directional predicament*" of aesthetic theory.

The law of growing implicitness, which we met as one of the major factors determining artistic taste, is equally valid for aesthetic experiences derived from nature. Expressions such as "a landscape (or sunset) like a picture postcard" express the spectator's surfeit with a certain type of panorama which offers itself too overtly and obviously. Romantic views like the gulf of Naples, by too unashamedly reflecting the glow of Mediterranean colours, the voluptuous sweep of land embracing sea, by leaving too little to divine, become as cheap as an obliging courtesan. The absence of veils frustrates imagination and robs it of the delight of discovery. And as vision becomes inevitably saturated with a given type of bisociation, the discoveries of yesterday become the conventions of today. The more romantic a work of art, or a landscape, the quicker its repetitions are perceived as *kitsch* or "slush." We do not enjoy, say, a Rubens on its face value, but by means of an unconscious mental reattunement to the values of the period.

The effect of deliberate falsifications, from Ossian to van Meegeren's false Vermeers, is a direct illustration of the law of growing implicitness. When the fraud is exposed, the first reaction is usually a good laugh at the experts. This is unjust, for genius consists not in the perfect exercise of a technique but in its invention. Once the technique is established, mediocrity with sufficient diligence can produce works in the master's idiom, and indistinguishable from his. A versatile young poet, by specializing in the Elizabethan age, will in a few years be able to produce Shakespearean sonnets which might well baffle the expert.¹⁸ The principal mark of genius is not perfection but originality, and there is no aspect in any masterpiece which, once the idiom has become common property, could not be improved upon.

¹⁸ See, e.g., the competition columns of the *New Statesman and Nation*.

The second reaction to exploits like van Meegeren's is a feeling on the public's part that all they have been told about art is swindle and that no criteria exist for the good or bad; for if (*a*) a false Vermeer is indeed equal in aesthetic value to a true one, why all this admiration for the old masters? and (*b*) if painters today can paint as good pictures as Vermeer, why don't they all do it? The answer to (*a*) has already been given: the achievement of genius can only be measured against the background of its period, and that is what we unconsciously do; even if we misguidedly think that we apply absolute criteria, we in fact apply relative ones (compare Chapter XIX about the "antiquarian fallacy"). And if we contemplate the false Vermeer a first time believing it to be authentic, and a second time knowing that it is a fake, our aesthetic experience will indeed completely change, though the picture has remained the same. This is not the effect of snobbery, but of the fact that our mental field is differently attuned the second time, and that different selective operators are at work. Certain naïvetés of technique which in the first case pass unnoticed, because the mental field is attuned to the period, will in the second case rightly appear as intentional and deliberate. Hence the answer to the second objection (*b*) is that the twentieth century painter cannot naïvely start painting like Vermeer because his visual organization is different; and if he deliberately reconditions his vision to the Flemish seventeenth century, he must force his customers to do the same.

In Giorgione's first landscape in the modern sense, the violent tempest in the background contrasts with the bucolic proceedings in the foreground; it may be called an example of the bisociation of the tragic and the trivial. This theme is given by an implicit allusion—so much so, that our verbal formulation of it appears as clumsy and overexplicit. No verbal description, however, can do any harm to Victorian variations of the "Death-fiddles-to-the-dance" theme. Here the explicitness of the treatment would kill the effect almost independently of period. Other examples could be cited where the degree of obviousness in a conventionalized style or theme

may remain constant, and yet grow relative to the progressive saturation of the public. In both cases the effect is the same: decrease of aesthetic effect through immunization of the public against the treatment in question.

The necessity of growing implicitness manifests itself in different ways according to the type of aesthetic effect aimed at. Direct attacks on emotion are experienced as sentimental, overromantic, slushy, pornographic. Patterns of unity-in-variety become boring if they are too obvious. The snow crystal is the more beautiful the more its geometrical unity is masked by complexity of structure. Represented on the drawing board, with its regularity made overt, it is boring. The pulsating beat implied in metre becomes, if too explicit, monotonous. The same applies to all rhythmic patterns. The triangular composition in Raphael's treatment of the Madonna-and-Child theme is (as Eric Newton has pointed out)¹⁹ a shade too obvious; so are the connecting gestures between each group of three apostles in Leonardo's "Last Supper." Too overt patterns of harmony and discord, of alternating contrasts, become quickly boring. All obvious efforts to suggest grace and sweetness, to court sensory agreement, defeat their own aim. What Mallarmé said about the implicit nature of poetry is valid for all arts:

There should be nothing but allusion. The contemplation of objects, the volatile image of the dreams which they evoke, these make the song. . . . The symbol is formed by the perfect use of this mystery: to select an object and to extract from it, by a series of decipherings, a mood.

But avoidance of the obvious, and the economy of means which implicitness demands, should not be misinterpreted—as it so frequently is—as a demand for moderation. "Restraint" and "economy" refer here to a specific technique and must not be understood in quantitative terms. Goya's "Disasters" and Hemingway's novels are not moderate. Nor is pre-Columbian sculpture. On the other hand, the average Royal Academy portrait or Grand Salon land-

¹⁹ *Op. cit.*

scape displays all the virtues of moderation, and yet, through its explicitness, "deprives the mind of that delicious joy of imagining that it creates."

The artist's aim is to turn his audience into accomplices. Complicity does not exclude violence, but it is based on a shared secret.

ILLUSION

"Abstract art" is as much a contradiction in terms as "pictorial philosophy." The creative artist, like the revolutionary, may act on a mistaken theory; he takes an honourable risk, for he will pay for his errors with defeat. But the fellow travellers of "movements," both in politics and art, risk neither their head nor their reputation, and can spread with impunity epidemics of muddled thinking and half-baked slogans.

Picasso has sometimes been called an abstract painter, and he is certainly no academic *pompier*. Yet this is his comment on the point in question:

There is no abstract art. You must always start with something. Afterwards you can remove all traces of reality. There's no danger then anyway, because the idea of the object will have left an indelible mark. It is what started the artist off, excited his ideas, and stirred up his emotions.²⁰

In other words, all art is representative; it is not representative of a "thing," but of the artist's experience of a thing. The primary aim of the painter or sculptor is to provide the spectator with an illusion—not the illusion of seeing a thing, but the illusion of seeing a thing through the artist's eyes.

Illusion is the basic structure on which the complex scaffolding of bisociative processes rests. There is no need to repeat here what has been said earlier (Chapter XXI) about the emotive power of illusion as such on children and primitives, nor about its origin in participative magic. The painted mask, the carved totem or idol are

²⁰ In a conversation with the editor of *Cahiers d'Art* (1935), quoted from R. Goldwater and M. Treves, *Artists on Art* (New York, 1945).

perceived at the same time as what they are and what they represent; the two fields fuse constantly into one. The Greek wood carver's admonition to his statue of Zeus: "You need not be so proud, I knew you from a plum tree," is a perfect example of a bisociative pattern which, through infusion of an aggressive charge, turns from self-transcending worship into self-asserting malice.

We saw before that for the savage (as distinct from the primitive with an artistic tradition) and for the child, illusion alone is sufficient to evoke aesthetic experience, and that, accordingly, "likeness" is regarded by them as the supreme criterion of art. They are still on the lowest grade of the bisociative series, and will only develop higher tastes when the primitive magic of illusion has lost its attraction for them. Progress is a function of saturation. Even Leonardo wrote in his notebook: "That painting is most praiseworthy which is most like the thing represented."

However, the "most like" has an infinite number of interpretations, if for no other reason because the range of luminosity in pigment is only a fraction of that of natural colour, and the area of the canvas only a fraction of the visual field. Hence the painter is forced to cheat, and the way he cheats depends on his subjective selection of relevant aspects. Even a photograph depends on the distance of the chosen focus and the colour-and-light-selectivity of the film. The wax figure is the lowest form of art precisely because the plasticity of its material and its natural size relieve its maker of the necessity for a relevant selection: it is "irrelevant" in the literal sense of the word—except as an object of primitive magic, with its frightening archetypal echoes of the *Doppelgänger* motif, of the image in the mirror, of the dead coming alive.²¹

Thus, the first operative field bisociated with the visual is determined by the medium. It places the familiar object in a new context; the great discovery of the first cave artist, a true eureka

²¹ Horror tales centered round the image in the mirror are an inversion of the Bergsonian bisociation of the human and the inanimate. The fields of human reality and of the make-believe image reverse their roles: it is the latter which appears as *real*, and carries the frightening message from the inanimate world that the living self is an illusion.

process, was that he suddenly saw the mammoth as "something which consists of form and colour"—just as Archimedes saw his familiar hairy body as "a solid which displaces a given amount of water." Once the two fields are joined, nothing can separate them. The artist will see "in terms of" stone, wood, or pigment; he must conform to the structural laws of his medium; he cannot work against its grain.

With his mastery of the material, the higher bisociative series come into play. Once he can do with his material what he likes, the question *what* he likes, that is, what he regards as relevant, becomes the only one that matters to him and to his public. Leonardo, who considered likeness the most praiseworthy thing, qualified his own idea of "likeness" by the further dictum: "A good painter is to paint two main things; namely, man and the working of man's mind." Thus bisociation of form and medium is followed by the bisociation of form and function, and so on. The gradual unfolding of the bisociative series in the artist's mind has been described by Picasso:

When I paint a picture I am not concerned with the fact that two people may be represented in it. Those two people once existed for me but they exist no longer. My vision of them gave me an initial emotion, then little by little their presence became blurred; they became for me a fiction, and then they disappeared altogether, or rather they were transformed into all kinds of problems, so that they became for me no longer two people but forms and colours—forms and colours which nevertheless resume an experience of two people, and preserve the vibration of their life.²²

In this short survey only a few of the bisociative processes were mentioned which interact during the contemplation of any single work of art—and even these few examples suffice to convey an impression of the great complexity of the experience. But if we recall the enormous complexity of processes which constitute, say, a protein molecule, we cannot expect to explain aesthetic experience by a few sonorous generalities. A picture is reflected in the experient's

²² *Artists on Art* (New York, 1945).

mind as a near-simultaneous interaction of selective patterns and patterns of patterns, partly conscious, mostly un verbalized, and each having its distant resonances in the philogenetic pool of archetypes. Even where apparently no such echoes occur, in the bisociation of one visual field with another, of the visual raw material with "significant form," the selective operator of which is said to have no "meaning," no cosmic echo, no associative connections with anything beyond itself, analysis will always unearth some mental links to kinaesthetic experience, to sensory preferences, or to some un verbalized ideas of purpose and function. Not all painters have a taste for verbal theorizing like Seurat—or like Ozenfant, who evolved the theory of "constant universal forms" which are either organic, like the egg, or mechanical, like the cube; but whenever a painter interprets his vision in verbal symbols, the ultimates and absolutes of the Tragic Plane are evoked at once. And when all is said, they are in their essence neither better nor worse than Ruskin's ideas of "typical beauty" exemplified by "infinity, the type of the divine incomprehensibility," "unity, the type of divine comprehensiveness," "symmetry, the type of divine justice," and so on. When Kepler set out to prove that the orbits of the planets must stand in the same ratio of simple numbers as the harmonic intervals in the musical scale, he was driven by essentially the same impulse as the Greek sculptor in his search for the golden section as an absolute norm of beauty, and the modern painter in his pursuit of "significant form." And Kepler's belief that the planets hummed harmonious chords as they circled round the sun, which man could hear but for the din around him, is an expression of the secret underground current which flows through all art and discovery. For, to quote Chirico:

Everything has two aspects: the current aspect, which we see nearly always and which ordinary men see, and the ghostly and metaphysical aspect, which only rare individuals may see in moments of clairvoyance and metaphysical abstraction. A work of art must narrate something that does not appear within its outline.

APPENDIX II

Other Theories of the Comic: Bergson and Freud

J. Y. T. GREIG'S *Psychology of Laughter and Comedy* contains, as already mentioned, a bibliographical list of not less than three hundred and sixty-six titles bearing partly or entirely on the subject. Theorists of the comic are also, as is to be expected, divided into various schools, such as followers of the "theory of degradation," of the "theory of incongruity," and so on. Most of these theories are true for some particular aspect or branch of the comic, and break down when applied to others. The older ones are critically analysed in Sully's monumental *An Essay on Laughter: Its Forms, Its Causes, Its Development and Its Value* (1902); more recent developments are surveyed, *inter alia*, in the work quoted by Greig (1923), in J. C. Gregory's *The Nature of Laughter* (1924), and in Max Eastman's two delightful volumes on the subject, *The Sense of Humour* (1921) and *The Enjoyment of Laughter* (1936).

As in the present work the analysis of the comic merely serves as a means towards an end, the reader with a special interest in the subject is referred to the titles just mentioned, together with those in the Bibliography, and our discussion can be confined to a few remarks on the two most significant theoretical works on the subject, Bergson's *Le Rire*, and Freud's *Wit and Its Relations to the Unconscious*.

Bergson's formula of the comic, based on the contrast between the supple adaptability of the mind on the one hand, and the inertia of matter, the mechanical rigidity of the machine on the other, refers to one of the major bisociative comic patterns, but merely to

one among many; and the attempt to reduce them all to that one specific pattern has led to the result (as Sully has already pointed out) that the examples which Bergson quotes are either so chosen as to fit the theory, or made to fit it by truly admirable feats of verbal acrobacy.

Thus Bergson relates the story of a woman whom Cassini, the astronomer, had invited to watch an eclipse of the moon through his telescope. She arrives late, but comforts herself with the remark: "Surely M. Cassini will be good enough to start again." The pattern of the anecdote is clear:¹ F_1 is the mental field of the spoiled society woman expecting everybody to be at her beck and call, including the whole solar system—which, however, pertains to a different field F_2 with associations of cosmic grandeur and majesty. The emotional charge is aggressive malice; with a self-transcending charge, the same bisociation of the small and human with the astronomical yields poetic imagery: "reaching for the stars," "the mortal moon has her eclipse endured."

The Bergsonian analysis of the same story runs as follows. All *disguise* is comic, because if a person is normally dressed his clothes seem to be at one with his body, whereas when disguised his clothes form a rigid envelope round the living suppleness of his body (pages 39-40)²; on the next three pages a series of imperceptible transitions are made from "disguise" in the literal sense as a source of comic effect to "disguise" in a metaphorical sense: "A man in disguise is comic. A man whom we believe to be disguised is also comic. By extension, all disguise becomes comic, not only in man, but also in society and nature" (page 43). "Hence, when nature is mechanically counterfeited, we have an openly comic motif," as for instance in Tartarin's fantasy that the glaciers, waterfalls, and crevasses in Switzerland are all stage props produced by clever machines owned by a tourist company (page 44). And on the next page (p. 45),

¹ Cf. the story of the surgeon who asks the prince whether he should also "take off the other leg."

² The page numbers refer to the 15th French edition of *Le Rire* (Paris, Félix Alcan, 1916).

without further explanation, follows the story of the astronomer and the lady. Thus Bergson wants us to believe that the story is comic because the lady is convinced that Cassini has faked the eclipse as the tourist company has faked the glaciers; and this again is comic because such fakes amount to mechanical disguises of nature; and disguises are comic because they represent a rigid crust on the living. The explanation reminds us of the story of the blind man who, on being told that a swan is a bird with a bend in the neck, says with a sigh "Now I know what milk is."

Bergson's essay is full of similar examples where, in his desire to reduce *all* contrasting or juxtaposed fields to the one duality of spirit and matter, Bergson manipulates associative affinities and echoes until, by a series of subtle transitions, it is proved that all colours can be reduced to the contrast of black and white.

Bergson's main sources of the comic are inertia, rigidity, repetitiveness encrusted upon the spirit; his prototypes of the risible are the man-automaton, the puppet on strings, jack-in-the-box, the distracted person (embodiment of the inertia of the mind), and so on. But to each of these prototypes an opposite number can be found which is not comic, but tragic or frightening. The man-automaton is a classic theme of the horror tale: homunculus, the golem, Frankenstein's Monster, the destructive robot. The puppet on strings is an age-old poetic allegory of man's dependence on supernatural powers. Distraction becomes frightening in the madman's behaviour, and admirable in the single-mindedness of creative genius. In other words, each of the Bergsonian prototypes will appear as comic or tragic according to the emotional charge of the bisociated fields; and if we insist on "reducing" each juxtaposed pair of fields to the dualism of mind and matter, we must conclude that this dualism may take a comic, tragic, or neutral shape according to circumstances—which is a truism and leaves the specific problem of the comic where it was before.

Moreover, if rigidity contrasting with organic suppleness were laughable *per se*, Egyptian statues and bas-reliefs would be the best jokes ever invented. If automatic repetitiveness in human behaviour

were a necessary and sufficient condition of the comic, there would be no more amusing spectacle than an epileptic fit, and if we wanted a good laugh, we would merely have to feel a person's pulse or listen to his heartbeat, with its monotonous tictac. If "we laugh each time a person gives us the impression of being a thing" (page 59), there would be nothing more comic than a corpse, and the more putrefied the funnier. If disguise is only comic because it is a rigid envelope round the body, why does Rosalind's subtle and pliant impersonation of a boy amuse us? If a playing kitten is funny because we detect in it "a human attitude of expression" (page 3), in other words, because it is a human in disguise, the kitten's movements must be *per definitionem* rigid and automaton-like—and so on.

Pages could be filled with examples demonstrating the absurdities to which the theory leads; and a further list would have to be added of types of the comic which it does not cover: from tickling, through the smile of relief, to pathological laughter. And nevertheless Bergson's essay remains a miniature masterpiece of psychological analysis whose author has come nearer to the heart of the problem than anyone else before him. In his chapter on the Comic of Situations, he actually held the key in his hands, for one of his sub-categories of this type of the comic is the "interference of series": "A situation is always comic if it belongs simultaneously to two absolutely independent series of events, and can be interpreted in two entirely different senses at the same time" (page 98). But for Bergson this formula only applies to the vaudeville type of comedy of errors, and he regards it merely as an instance, together with "Repetition" and "Inversion," of the "mechanisation of life": of "treating life as if it were a repetitive machinery with reversible effects and interchangeable pieces." But on what grounds, the reader may ask, is the interference of two independent series of events to be regarded as a "mechanisation of life"? The only answer we find in Bergson is that when Nature produces repetitions or coincidences she seems to us to behave *as if* directed by a stage machinery—hence repetitions and coincidences *are* "mechanisations of

life." In this argument Bergson uses the terms "mechanism," "machinery," "rigidity," and so forth partly in a metaphorical, partly in a direct sense, and his proof consists in identifying the two. He might as well argue: We speak of "mechanisms" of thought; mechanisms inside the spiritual are comic: hence all thought is comic.

His treatment of parody, irony, and so forth follows the same pattern. The transposition of a relation from a solemn into a trivial context, like Jean Paul Richter's description of dawn: "The sky began to change from black to red like a boiling lobster," which Bergson quotes (page 126), is comic because transpositions are "mechanical procedures," because they suggest the tearing out of an idea of its natural environment or frame and its transfer by some mechanical device into a different environment. Again the metaphoric description of the mental operation is made to serve as its explanation. It is needless to say that quite similar bisociations of the solemn and the trivial (the rosy-fingered dawn, the wine-dark sea) may equally well serve poetic effects.

The worst shortcoming of Bergson's theory is its complete neglect of the emotional dynamics of laughter, of its tension-relieving aspect. For him laughter is society's corrective punishment of asocial behaviour, that is, of a lack of adaptability, and there the matter ends; how such a corrective reflex has developed, its genesis and physiology are without interest to the metaphysician. And yet, it should again be repeated, Bergson's is the most stimulating work ever written on the subject; the only one, before Freud's, which gleaned the wider perspectives which the problem of the comic implies, and incidentally, also an anticipation of Freud's, for it contains, *inter alia*, the striking thesis: "The absurdity of the comic is of the same nature as the dream's."

As already said, Bergson's theory is not in contradiction with ours, but contained in it as referring to a frequently met subcategory of the comic. An even more complete harmony can be achieved if Bergson's metaphysical terms are reinterpreted in a concrete psychophysiological context. His "rigidity encrusted on life" appears in our theory as the structural consistence of habit-grown fields of

behaviour and thought which is a precondition of the bisociative effect; for without a certain "rigidity" of habit, that is, the conservative persisting tendency of these fields, their intersection would lead to no clash. And Bergson's inertia of matter contrasting with the pliability of the spirit corresponds in our theory to the greater inertia of emotive processes of the self-asserting type, as compared to cognitive processes—which leads, during the bisociative jump, to the separation of the two and to the discharge of redundant energy in laughter.

Freud's theory is of much greater profundity and complexity than Bergson's. It was the third major work of his early period (published in 1905), and together with the *Interpretation of Dreams* (1900) and the *Psychopathology of Everyday Life* (1901) which preceded it, forms one of the monumental pillars of his system. Its importance is, of course, not in its specific contribution to the problem of the comic, but in the indirect light which it threw on unconscious mechanisms particularly in the dream, and in demonstrating the validity of Freud's revolutionary concepts for all phenomena of the mind.

Because of its great complexity, Freud's theory can only be incompletely summarized here, and the reader must be referred to the original. In a nutshell, it is summed up by Freud himself on the last page of the book (page 269): ³ "The pleasure in the witticism seems to us derived from an economy in *repressive energy*, comic pleasure from an economy in *imaginative* (cathexic) *energy*, humoristic pleasure from economy in *emotive energy*." ⁴ This formula has been violently attacked and much ridiculed by critics insufficiently familiar with the peculiarities of Freudian terminology, and particularly with his use of the terms "psychic energy," "expenditure,"

³ The page numbers refer to the German Imago Edition of the *Collected Works*, Vol. VI (London, 1940).

⁴ The term "energy" in the translation refers to the word *Aufwand* in the original: "Die Lust des Witzes schien uns aus *erspartem Hemmungsaufwand* hervorzugehn, die der Komik aus *erspartem Vorstellung* (*Besetzungs*) *aufwand*, die des Humors aus *erspartem Gefühlsaufwand*."

"economy," and so forth. To analyse these terms would lead us too far; to simplify our task we have to sacrifice precision and translate the Freudian formula into simpler language as follows. The various forms of comic stimuli cause in various ways an "economy" or "gain" of amounts of nervous tension which otherwise would serve concrete purposes; these "gains" thus represent amounts of redundant energy which are pleasurably discharged in laughter. In other words, we have here Spencer's discharge-theory which Freud has incorporated into his own (pages 163-164) as we have likewise done (compare Part One, Chapter V), and to this extent there is essential agreement between Freud's theory and our own. Our differences with Freud refer to the interpretation of the ways by which the comic stimulus makes such redundant amounts of energy available. In some respect these disagreements can be reduced to mere differences in terminology, in others not.

In our theory the process is essentially the same for all types of the comic: the bisociative jump or jumps lead to a detachment of self-asserting emotions from thought, and the former, which have thus become redundant, are discharged in laughter. In the Freudian theory, however, there are four distinctly different processes for the four categories of "harmless wit," "tendency wit," "the comic," and "humour." These we now have briefly to review, and to compare with our own.

The "harmless witticism" of Freud's is a verbal joke which carries no noticeable aggressive or sexual charge. It operates through various techniques which we also find in the dream: condensation, displacement, sophism, representation of a thing by its opposite, sound affinity, and so forth. All these we have met in Part One of this book as variants of bisociative patterns according to the nature of the junction and of the fields involved; their recurrence in the dream we explained through the bisociative tendencies of the latter—departures from a rational field along an emotionally or otherwise preferred tangent in "thalamically attuned" states. Now all these procedures (association by sound affinity, condensation, and so forth) represent philogenetically or ontogenetically earlier methods

of thought, and the pleasure in harmless wit is derived precisely from this regression to "childish" or unconscious modes of thinking—or, which amounts to the same, from the relaxing of the normal rational controls, part of whose energy is thus "economized," because it is redundant and can thus be discharged.

The mechanism of the "tendentious witticism" is also based on a release process, but while "harmless wit" releases earlier types of *thought*, "tendentious wit" releases *emotions* which are normally repressed. The "economy" here consists in amounts of repressive or inhibitive energy which, as their prisoner has been liberated, as it were, become redundant and can be discharged. But how does the witty stimulus achieve this liberation of the repressed? By a peculiar Freudian mechanism, called *Vorlust* or *Verlockungs-Praemie*—a "bribe" or "lure" which the witty technique offers to the "censor," thus enabling the normally repressed emotions to give him the slip. Now these witty techniques which serve as a bribe are by Freud expressly identified with "harmless wit," for harmless wit consists in just these regressively playful techniques and nothing else (pages 15, 104). In other words "tendentious wit" is "harmless wit" plus a (mainly repressed) emotional charge; and the dynamics of release consists in this, that the playful technique of the "harmless" core of the witticism liberates the emotional charge.

Translated into our own terminology, this mechanism now presents itself as follows. What Freud calls "the technique of harmless wit" we called the "intellectual geometry" of the joke. What he calls its "tendency" we called its "emotional charge."⁵ The emotional dynamics of the joke, we said, consists of a component of "intellectual satisfaction" derived from "seeing the joke," plus the

⁵ That part of the charge may be derived from normally repressed contents has been mentioned, but not emphasized—partly because, after half a century of Freudism, this may be taken for granted, and partly because we regard the "emotional charge" as the direct source of the discharged energy, and consequently need not distinguish between "repressed" and "free" emotions, whereas for Freud the source of discharged energy is not the redundant emotion itself, but the energy which was previously necessary to repress it—in our opinion a quite unnecessary and unprovable complication.

discharge of the redundant or liberated emotional charge (or "tendency"), plus, sometimes, a nonspecific element of "gloating" (which Freud does not mention). To synchronize our theory with Freud's, we may, of course, describe the intellectual geometry of the bisociative process, and the intellectual satisfaction derived from it, as a "lure" for the discharge of the emotion. Furthermore we saw that this component of intellectual satisfaction reflects or relieves the eureka process of the inventor of the joke; and this, like all processes of original discovery, implies a momentary regression to earlier—infantile, primitive, dreamlike—modes of thought, that characteristic process of *reculer pour mieux sauter*. Thus if, according to Freud, the pleasure caused by the "harmless joke" is derived from the release of rational controls, the intellectual satisfaction in the relived eureka process has in our own theory a closely similar dynamics. This part of the Freudian theory in fact implies the continuity of the self-asserting and neutral zones, and of the corresponding emotional components in "harmless" and "tendentious" wit.

Thus, so far our theory seems to differ from Freud's mainly in detail and nomenclature. But when we come to the third part of Freud's theory, the divergence becomes more pronounced. The third type of comic stimulus for Freud is what he calls "the Comic" in a narrower sense—as distinguished from humour and from the two types of wit. Freud maintains that though "Wit" and "the Comic" may combine, they are in principle quite different categories. The pleasure-gain in the comic is not derived from a gain of "repressive energy" as in the case of the witticism, but from a gain in "imaginative energy." This gain is the difference between the energy-expenditure which the comic stimulus makes one believe to be necessary, and the much smaller expenditure which turns out to be really necessary. This quantitative difference, and this alone, is the source of the comic effect. It results from (a) unconsciously comparing the efforts which another person, for example, a fumbling clown or clumsy child, needs to accomplish a task with the much smaller effort we would need for the same task; (b) through a comparison between expected and real effort in ourselves, (c) through

a similar comparison between the energy-expenditure incurred and required in another person (page 257). The energy expenditures of other people are reflected in us by the mechanisms of empathy, sympathetic induction, and so forth. Whether the nature of nervous energy thus economized consists in expectative tension (*Erwartungsaufwand*) or in the abstractive effort (*Abstraktionsaufwand*) makes no difference; the quantitative gain alone is what counts.

So far Freud's theory of the comic. Now the core of these rather bewildering formulations can again be expressed in simple language: the comic surprise brings our expectations to naught and explodes the nervous tension or "energy." But this "gain" in superfluous and dischargeable energy results only in particular cases from the comparison or clash of *quantitatively* differing behaviour or thought patterns. In the types of comic summed up by "the mountains laboured, the birth was a mouse," this is certainly the case. But in the great majority of comic patterns the "gain" of redundant energy results from the intersection of fields which differ in the *quality* of their operators and not in their quantitative scale. It is not a case of energy becoming redundant because there was too much effort, but because it was a type of effort which does not fit the situation. Freud's attempt to reduce differences in the quality of the behaviour patterns involved in a comic situation to differences in quantity leads to quite absurd results, which will be illustrated by two examples.

First, his explanation of the comic effect of *bodily exposure* (pages 252-253). "Chance exposures of the body (or parts of the body—*Entblössung*) affect us as comic, because we compare this easy way of enjoying what is offered to the eye with the great effort which would otherwise be necessary to attain the same aim." Freud gives no examples to illustrate this astonishing thesis, so let us take the most obvious one: the corpulent lady in the comic film whose evening dress has burst at the back, or the dignified gentleman whose trouser seat was ripped open by some mishap. Clearly our laughter results from the clash between the pompous façade and

all too human flesh; the tension discharged represents our effort to be conventionally solemn and earnest in dealing with these worthies which has suddenly been "decapitated" by the flash. The Freudian explanation applied to such situations is simply preposterous—in fact, comic, through the clash of the Freudian with the Chaplinesque climate.

Secondly, Freud's explanation of the comic effects of *impersonation*: "As experience teaches us that all living beings differ from each other and that each requires an effort to understand it, we find ourselves disappointed if, for reasons of total similarity or deceptive imitation, no new effort is necessary. But this disappointment is one of relief, and the expectative effort which has thus become superfluous, is discharged in laughter" (page 239). The reader is invited to apply this formula to the pantomime-horse, or to any other example he can think of. It is true that this will be partly unfair, because Freud distinguishes between the comic effects of imitation as such, and the parodistic attitude which usually accompanies it. But without parody impersonation is not comic (compare Chapter VI) and the formula loses all significance.

The fourth part of Freud's theory concerns *humour*, which for him again represents a category clearly distinct from wit and the comic. Painful and unpleasurable sensations destroy the enjoyment of an otherwise comic experience, but "humour is a means to gain pleasure despite the disturbing painful effects; it replaces the development of such effects. The conditions of humour are given in situations where, according to our habits, we are tempted to develop painful effects, and where motives acting on us nip these effects in the bud. . . . The pleasure of humour develops at the expense of the prevented development of these effects, it comes out of economized emotional expenditure" (pages 260-61).

In other words, if A behaves in a clumsy way, B will laugh at him because A's behaviour is *comic* to him, but if A laughs at his own clumsiness, it is because he takes a *humoristic* view of it. A variant of this case is when something happens to A which should arouse B's pity; but as A's behaviour shows that he takes a humoristic view

of his own misfortunes, B is enabled to do the same and the energy discharged in his laughter is derived from his "savings" of non-expended pity. But in this variant B's behaviour represents merely an empathic echo of A's, so that the second process is reduced to the first.

Humour is thus "the highest form of the defence-mechanisms" of the psyche against painful experiences. Automatically to repress painful experiences is in the long run a harmful procedure as the aetiology of neuroses proves; but humour is a better expedient than repression, for it "finds the means to draw away the energy from the incipient development of unpleasure and to convert it into pleasure by discharging it" (page 266).

To illustrate the working of humour, Freud quotes, *inter alia*, Mark Twain's story about his brother who, while working for a road-building contractor, is blown sky-high by an explosion and lands so far away that his employer deducts half a day of his pay for "being absent from his place of work." Freud remarks that, though we are originally inclined to pity Mark Twain's brother, the turn which the story takes makes us "as pitiless as the employer, as indifferent against the possible injuries which the brother suffered"—and this "economized pity" is then discharged in laughter. This is perhaps the most disingenuous of all Freudian interpretations. In fact, of course, we laugh, first, because we know that the story is untrue, a tall invention; this reassuring knowledge eliminates pity and enables us to enjoy the story with an emotional charge of malice, even a touch of sadism. But this elimination of pity is merely the precondition of enjoying the intrinsically comic character of the story: the intersection of a highly dramatic with a flatly businesslike field of behaviour—compare "Once more and you are fired." In all gruesome humor—the lunatics diving into the dry swimming pool, or the Red Queen's "Off with his head"—we have either comic patterns invested with a violently aggressive charge, for the obvious make-believe character of the story enables us to be sadistic with a clean conscience; or their comic effect rests directly on a parody of the horror tale, which

is debunked by showing us that the ghosts and daggers are merely stage props. But the tension exploded in such cases is a fearful, that is, self-asserting tension (flight reaction) and to call it "economized sympathy" is a roundabout and confusing way of describing the process.

As to the genesis of the humoristic attitude towards one's own misfortunes, Freud tentatively connects it with an infantile source; the humorist laughs at his own misfortunes just as the adult smiles at mishaps which the child takes in bitter earnest. Here our own interpretation is very close to Freud's. The stoic smile for us is derived from the intersection of the field of bodily ego-experience with a cognitive field of a higher order, in which the ego appears as a minute speck in the universe; from the faculty of seeing oneself *from outside*—which, we said, is an eminently "witty" bisociative discovery.

In a number of passages, Freud emphasizes that his aim is not to present a complete theory of the comic, only of certain relevant aspects of it. The most significant gap in the theory regards the conditions under which an "economized" (redundant) amount of energy becomes free for discharge in laughter instead of being turned to other purposes. Freud comes back a number of times to this essential question (pages 104, 168-177, 249 and following), and enumerates a number of conditions for disposable energies to be discharged in laughter, but he also admits that these do not meet the requirement of "necessary and sufficient conditions" in the strict sense. Perhaps the main cause of this is that he made no distinction between the self-assertive and self-transcending type of emotions; hence, just as in the case of Bergson, practically all the patterns of wit and humour treated by Freud can be turned into tragic or poetic patterns by altering the emotional charge. When discussing Bergson, this was shown by a few examples; to repeat the procedure with Freud would be tedious.

The failure to differentiate between self-assertive and self-transcending emotions, or rather, the nonrecognition of the latter cate-

gory, has as a direct consequence that neither Bergson nor Freud saw the direct connection between the comic and the tragic, between laughter and crying, between humour and art. Freud touches upon art only once in passing when he remarks that its aim is "to draw pleasure from psychic processes, cognitive and otherwise" (page 104), but he adds at once that he "knows too little about aesthetics" to insist on the point. For Bergson, the essential difference between tragic and comic art is that the former deals with individuals, the latter with generalized types. This distinction may be valid when we confront Shakespeare's characters with Molière's types—but if generalized, the protagonists of the earlier Greek tragedy, the chorus leaders, the characters in religious Passion plays would all have to be regarded as comic figures, whereas, for example, the persons in a comedy by Shaw would all be tragic heroes. According to Bergson all Egyptian, archaic Greek, Byzantine, pre-Columbian art would be comic; and the phenomenon that a surrealist or cubist picture makes one spectator giggle, the other admire, is altogether unexplainable.

To sum up: neither Bergson's nor Freud's theory throws any light on the relations of humour with art and discovery, on the continuity of the spectrum of creative mental processes. Bergson's interpretation of the comic as the clash between the living and the mechanical is contained as a special case in the theory here presented; Freud's theory, when translated from his terminology into our own, constitutes, some details apart, an extension and complement of our own. This refers particularly to Freud's emphasis on the infantile and repressed elements in the comic which in the present work have only been treated in passing as aspects of the specifically psychoanalytic approach.

Selected Bibliography

- Association for Research in Nervous and Mental Diseases (A.R.N.M.D.). A series of research publications:
- Vol. XIII, *Localization of Function in the Cerebral Cortex*. Baltimore: Williams & Wilkins Co., 1934.
- Vol. XIX, *The Inter-relationship of Mind and Body*. Baltimore: Williams & Wilkins Co., 1939.
- Vol. XX, *The Hypothalamus and Central Levels of Autonomic Function*. Baltimore: Williams & Wilkins Co., 1940.
- Alvarez, W. C., "New Light on the Mechanisms by Which Nervousness Causes Discomfort," *Jour. Amer. Med. Assn.*, Vol. 115, pp. 1010-1012 (Sept. 21, 1940).
- Ariëns Kappers, Cornelius Ubbo, *The Evolution of the Nervous System in Invertebrates, Vertebrates and Man*. Haarlem: F. Bohn, 1929.
- Bard, P., "Central Nervous Mechanisms for Emotional Behavior Patterns in Animals," A.R.N.M.D., *Proceedings*, Vol. 19 (1939), pp. 190-218.
- Bell, Clive, *Art*. London: Chatto & Windus, 1921 (5th ed.).
- Bergson, Henri Louis, *Le Rire*. Paris: F. Alcan, 1916 (15th ed.).
- Bodkin, Maud, *Archetypal Patterns in Poetry*. Oxford: Oxford University Press, 1934.
- Brain, Walter Russell, and Strauss, Eric Benjamin, *Recent Advances in Neurology*. London: J. & A. Churchill, 1940.
- Brickner, Richard Max, *The Intellectual Functions of the Frontal Lobes*. New York: The Macmillan Co., 1936.
- Cannon, Walter Bradford, *Bodily Changes in Pain, Hunger, Fear and Rage*. New York: D. Appleton & Co., 1929 (2nd ed.).
- Carington, Whately, *Telepathy*. London: Methuen & Co., 1945.
- Carrel, Alexis, and Lindbergh, Charles A., *The Culture of Organs*. New York: P. B. Hoeber, 1938.
- Child, Charles Manning, *Physiological Foundations of Behavior*. New York: Henry Holt & Co., 1924.
- , *The Origin and Development of the Nervous System*. Chicago: The University of Chicago Press, 1921.
- Clark, W. E., Beattie, John, Riddoch, George, and Dott, N. O., *The Hypothalamus*. Edinburgh and London: Oliver and Boyd, 1938.
- Coghill, G. E., *Anatomy and the Problem of Behavior*. Cambridge: Cambridge University Press, 1929.
- Crile, George W., *The Origin and Nature of the Emotions*. Philadelphia: W. B. Saunders Co., 1915.

- Darwin, Charles R., *The Expression of the Emotions in Man and Animals*. London: J. Murray, 1872.
- , *The Origin of Species*. London: 1873 (6th ed.).
- Duchenne (de Boulogne), Guillaume, *Le Mécanisme de la physionomie humaine*. Paris: P. Asselin, 1862.
- Dunbar, Helen Flanders, *Emotions and Bodily Changes*. New York: Columbia University Press, 1946 (3rd ed.).
- Eastman, Max, *The Sense of Humor*. New York: Charles Scribner's Sons, 1921.
- , *The Enjoyment of Laughter*. New York: Simon and Schuster, 1936.
- Encyclopædia of Psychology*, ed. P. L. Harriman. New York: Philosophical Library, 1946.
- Freud, Sigmund, *Gesammelte Werke*. London: Imago Publishing Co., 1946.
- , *Selbstdarstellung*. London: Imago Publishing Co., 1946.
- , *Civilization and Its Discontents*. London: L. & V. Woolf, 1930.
- Fulton, John F., *Physiology of the Nervous System*. New York: Oxford University Press, 1943 (2nd ed.).
- Goldstein, Kurt, *Human Nature in the Light of Psychopathology*. Cambridge: Harvard University Press, 1940.
- , *The Organism*. New York: American Book Company, 1939.
- Goldwater, R. J., and Treves, M., *Artists on Art*. New York: Pantheon Books, 1945.
- Gregory, J. C., *The Nature of Laughter*. London: K. Paul, 1924.
- Greig, J. Y. T., *The Psychology of Laughter and Comedy*. London: G. Allen & Unwin, 1923.
- Gris, Juan, "On the Possibilities of Painting," *Horizon*, Aug., 1946.
- Hadamard, Jacques S., *An Essay on the Psychology of Invention in the Mathematical Field*. Princeton: Princeton University Press, 1945.
- Head, Sir Henry, *Aphasia and Kindred Disorders of Speech*. Cambridge: Cambridge University Press, 1926.
- , *Studies in Neurology*. London: H. Frowde, 1920.
- Horney, Karen, *New Ways in Psychoanalysis*. London: K. Paul, 1939.
- Jaensch, E. R., *Eidetic Imagery*. London: K. Paul, 1930.
- James, William, *Principles of Psychology*. New York: Henry Holt & Co., 1910.
- Jung, Carl G., *Psychology of the Unconscious*. New York: Moffat Yard & Co., 1916.
- , *Contributions to Analytical Psychology*. London: K. Paul, 1928.
- , *Modern Man in Search of His Soul*. London: K. Paul, 1933.
- Kalmus, H., "Separation and Reintegration as Phases of Evolution," *Philosophy*, No. 70 (July, 1943).
- Koestler, Arthur, *The Yogi and the Commissar*. New York: The Macmillan Co., 1945.
- Koffka, Kurt, *Principles of Gestalt Psychology*. London: K. Paul, 1935.

- Köhler, Wolfgang, *The Mentality of Apes*. London: K. Paul, 1925.
- , *Gestalt Psychology*. New York: H. Liveright, 1929.
- , *Dynamics in Psychology*. London: Faber and Faber, 1942.
- Kretschmer, Ernst, *A Textbook of Medical Psychology*, trans. with an introd. by E. B. Strauss. London: H. Milford, 1934.
- Lashley, Karl S., *Brain Mechanisms and Intelligence*. Chicago: The University of Chicago Press, 1929.
- , contribution to *Biological Symposia* (Lancaster, Pa.), Vol. 7 (1942).
- , "Mass Action in Cerebral Function," *Science*, Vol. 73 (March, 1931), pp. 245-254.
- , "Coalescence of Neurology and Psychology," *Proc. Amer. Phil. Soc.*, Vol. 84 (1941).
- Lee, Vernon [pseud. Paget, Violet], *Beauty and Ugliness, and Other Studies in Psychological Aesthetics*. London: J. Lane, 1912.
- Lévy-Bruhl, Lucien, *How Natives Think*. London: Unwin Brothers, 1925.
- , *Primitive Mentality*. London: G. Allen & Unwin, 1923.
- Lewin, Kurt, *Principles of Topological Psychology*. New York: McGraw-Hill Book Co., 1936.
- Listowel (W. F. H.), Earl of, *A Critical History of Modern Aesthetics*. London: G. Allen & Unwin, 1933.
- McDougall, William, *The Group Mind*. New York: G. P. Putnam's Sons, 1920.
- Macleod, J. J. R., *Physiology in Modern Medicine*, ed. Philip Bard. St. Louis: C. V. Mosley Co., 1941.
- Mallarmé, Stéphane, *Enquête sur l'Évolution littéraire*.
- Marey, E. J., *Du Mouvement dans les fonctions de la vie*. Paris: G. Baillière, 1868.
- Marston, W. M., *Emotions of Normal People*. London: K. Paul, 1928.
- Maudsley, Henry, "Physiologie de l'esprit," *Revue philosophique*, Vol. II, No. 11.
- Morgan, T. H., *The Physical Basis of Heredity*. Philadelphia: J. B. Lippincott Co., 1919.
- Murchison, Carl, ed., *A Handbook of General Experimental Psychology*. Worcester, Mass.: Clark University Press, 1934.
- Newton, Eric, *European Painting and Sculpture*. London: Penguin Books, 1941.
- Ogden, C. K., and Richards, I. A., *The Meaning of Meaning*. New York: Harcourt, Brace & Co., 1923.
- Piaget, Jean, *The Language and Thought of the Child*. New York: Harcourt, Brace & Co., 1932 (2nd ed.).
- , *The Child's Conception of Physical Causality*. London: K. Paul, 1930.
- , *Judgment and Reasoning in the Child*. New York: Harcourt, Brace & Co., 1928.
- , *The Child's Conception of the World*. New York: Harcourt, Brace & Co., 1929.

- Piaget, Jean, *The Moral Judgment of the Child*. London: K. Paul, 1932.
- Polya, György, *How to Solve It*. Princeton: Princeton University Press, 1945.
- Raulin, J.-M., *Étude anatomique, psycho-physiologique et pathologique sur le rire et les exilarants*. Paris: J.-B. Baillière & fils, 1899.
- Reid, Louise A., *A Study in Aesthetics*. London: G. Allen & Unwin, 1931.
- Reik, Theodor, *Das Incest-Motiv in Dichtung und Sage*. Berlin: 1929.
- Rhine, Joseph B., *Extra-Sensory Perception*. London: Faber & Faber, 1935.
- Ribot, T. A., *La Psychologie des sentiments*. Paris: F. Alcan, 1896.
- Richards, I. A., *Principles of Literary Criticism*. London: K. Paul, 1924.
- Sachs, Hanns, *Freud: Master and Friend*. London: Imago Publishing Co., 1946.
- Schopenhauer, Arthur, "Über den Tod," in *Aphorismen zur Lebensweisheit*. Leipzig: A. Kröner, 1904.
- Sherrington, Sir C. S., *The Integrative Action of the Nervous System*. London: A. Constable & Co., 1906.
- Spencer, Herbert, "The Physiology of Laughter," in *Essays on Education and Kindred Subjects*. London: J. M. Dent & Sons, 1911.
- Sponder, Stephen, "The Making of a Poem," *Partisan Review*, Summer, 1946.
- Sully, James, *An Essay on Laughter*. London: Longmans, Green & Co., 1902.
- Suttie, I. D., *The Origins of Love and Hate*. London: K. Paul, 1935.
- Thompson, D. W., *On Growth and Form*. Cambridge: Cambridge University Press, 1942 (new ed.).
- Tolstoy, Leo, *What Is Art?* Vol. 18, *Works of Leo Tolstoy*. Oxford: Oxford University Press, 1929.
- Warcollier, René, *Experiments in Telepathy*. New York: Harper & Bros., 1938.
- Watson, J. B., *Psychology from the Standpoint of a Behaviorist*. Philadelphia: J. B. Lippincott Co., 1929 (3rd ed.).
- , *Behaviorism*. New York: W. W. Norton & Co., 1930 (rev. ed.).
- White, J. C., and Smithwick, R. H., *The Autonomic Nervous System*. New York: The Macmillan Co., 1941 (2nd ed.).
- Whyte, I. L., *The Next Development in Man*. London: The Cresset Press, 1944.
- Wilson, S. A. K., *Modern Problems in Neurology*. London: E. Arnold & Co., 1928.
- Wolberg, Lewis R., *Hypnoanalysis*. New York: Grune & Stratton, 1945.

Index

- Absolute, field of the, 321, 322
Adonais, 327
 Adrian, Edgar, 44
Adventures of a Black Girl in Search of God, 368
 Aesthetic experience, serial nature of, 288-291
Alice in Wonderland, 91, 100. *See also* Carroll, Lewis
 Alvarez, W. C., 68
 Ambivalence, 196
Ancient Mariner, The, 376
Animal Farm, 95
 Antiquarian fallacy, 315, 316
Archetypal Patterns in Poetry, 323 n., 327, 371 n.
 Archetypal resonances, 325-328
 Archetype, of Universal Law, 328
 Archetypes and the absolute, 322-323: hierarchy of aesthetic values of, 324-325
 Archetypes in literature, 317-332
 Archimides, 53, 251-254, 257, 261, 267, 272, 415
 Aristophanes, 95
 Aristotle, 4, 55, 314
 Arno, Peter, 104
Artists on Art, 413 n., 415 n.
As You Like It, 36
 Association for Research in Nervous and Mental Diseases (A.R.N.M.D.), 61 n., 207, 337 n.
 Auden, W. H., 271, 310
Autonomic Nervous System, 281 n.
 Bach, J. S., 405
 Bacon, Francis, 56
 Bain, Alexander, 55, 56
 Ball, John, 328
 Balzac, Honoré de, 28, 376
 Bard, P., 61, 61 n.
 Bartók, Béla, 271
Battleship Potemkin, 313
 Baudelaire, Charles, 311
Beauty and Ugliness, 391 n.
 Beerbohm, Max, 56
 Beethoven, 401
 Behaviourism, 39
 Behaviourists, 7, 8
 Bergson, Henri, 4, 5, 17, 19, 41, 54, 56, 70, 73, 74, 78, 97, 98, 102, 417-422, 429, 430
 Bergsonian bisociation, 53, 74, 414 n.
 Bergsonian formula, 249
 Bernard, Émile, 409
Beyond the Pleasure Principle, 131, 132, 133 n., 208 n., 280 n.
Biological Symposia, 52 n.
 Biology, continuity of, 157-162
Birds, The, 95
 Bisociation, concept of, 36-38; and operative field, 36-53; human and animal pattern of, 75; of perceptual and operative fields, 78-80; and integrative tendencies, 277-279; in Art, 283
 Bisociative patterns, 383-389
 Bisociative processes, in humour, Art, and discovery, 50-53
 Blake, William, 310, 318, 319, 389
 Bleuler, Eugen, 44
 Boccaccio, Giovanni, 240
Bodily Changes in Pain, Hunger, Fear, and Rage, 62 n., 206, 279 n.
 Bodkin, Maud, 323 n., 327, 371 n., 376
 Bogart, Humphrey, 300
 Brahmanism, 176, 219
Brain, 61 n.
Brain Mechanisms and Intelligence, 164 n.
 Brickner, R. M., 61, 61 n., 183 n.
 Buddha, 146, 323, 367, 371
 Buddhism, 176, 219
 Byron, George Gordon, 385

- Cahiers d'Art*, 413 n.
 Camus, 368
 Cannon, Walter B., 60, 62, 62 n., 63-65, 68, 126, 206, 207 n., 279
 Caricature, 77-81
 Carington, W., 191 n.
 Carlyle, Thomas, 320, 321
 Carrel, Alexis, 151, 160
 Carroll, Lewis, 99, 101. *See* *Alice in Wonderland*
 Cartoon, 77-81
 Cassini, 418, 419
 del Castagno, Andrea, 403
 Catholic Church, 372
 Cellini, Benvenuto, 398
 Cézanne, Paul, 409
 Chaplin, Charles, 72, 104
 Character and identification, 355-363
 Charcot, Jean, 11, 13
Charterhouse of Parma, The, 185
 Child, C. M., 140, 141, 143, 144, 158 n., 160, 162, 163, 165, 168
Child's Conception of Physical Causality, 82 n., 173 n.
 di Chirico, Giorgio, 416
 Christian Science, 243
 Churchill, Winston, 72
 Cicero, 55
Civilization and Its Discontents, 68, 132, 133, 173 n., 208 n.
 Civilization and instinct renunciation, 212-215
 Clown, The, 87, 88
 Cocteau, Jean, 387
 Comedy, 102-104
 Comic, emotional dynamics of the, 54-70; satire and allegory in, 94-97; how to analyze, 108-110; theories of, 417-430
 Comic response, summary of processes of, 7-16
 Comic stimulus, cognitive geometry of, 17-25
 Comic technique, originality and facilitation of, 27-30; economy, implicitness and riddle mechanism of, 30-33; recreative effort in, 33-35
 Comic verse, 99-102
Concise Oxford Dictionary, 7, 97
 Conflict and plot, 364-370
Contes Drôlatiques, 28
Contributions to Analytical Psychology, 373 n.
 Copernicus, Nicolaus, 272
Coriolanus, 368
 Correns, Karl E., 262
 Creative thought, comic clue to, 14-16
 Crile, G. W., 64, 67 n., 104, 105, 205 n.
Critical History of Modern Aesthetics, A, 385 n.
 Crying, physiology of, 113-116; psychology of, 117-129
 Cubism, 387
Cymbeline, 328
 Dante, 311
 Darwin, Charles, 6, 9-12, 53, 64, 104, 105, 126, 258-264, 272; and natural selection, 259-265
 Darwinism, 158
 Death instinct, 150-154, 222, 223, 280
 Descartes, René, 55
 De Vries, Hugo, 262
 Discharge, dynamics of, 58, 59
 Disney, Walt, 75
 Displacement, 91-93
 Dissociation, of thought and emotion, 64-65
 Distortions, 82, 83-86
 Divine Law, 232
Divine Poems, 324
 Donald Duck, 41, 84
 Donne, John, 118, 311, 320, 324
Don Quixote, 4, 30, 96
 Dostoevski, Fëdor, 367, 368, 376
 Dreyfus, Alfred, 35
 Dualism, 81
 di Duccio, Buoninsegna, 388
 Duchenne (de Boulogne), G., 6, 11, 11 n.
 Duke University, 190
 Dunbar, H. F., 136 n., 160 n.
 Eastman, Max, 97, 99, 417
 Ebeling, 151
 Ecclesiastes, 208, 328, 345
 Economy, of narrative, 304, 305; in Art, 409

- Edison, Thomas A., 343
 Education, neutral arts and, 271-273
L'Education Sentimentale, 368
Eidetic Imagery, 182 n., 391 n.
 Einstein, Albert, 270, 272
Electra, 306
 Eliot, T. S., 310, 311, 316, 376
 Emotion, "earthing" of, 331, 332
Emotions and Bodily Changes, 136 n., 160 n.
Emotions of Normal People, 197 n.
 Emotive arts, continuity of, 268-271
 Empathy, 181, 359, 360, 390-393
Encyclopædia Britannica, 151, 262 n., 302 n.
Encyclopædia of Psychology, 191 n.
Enjoyment of Laughter, The, 417
Enquête sur l'Evolution littéraire, 310 n.
Epipsychidion, 326
 Equilibrium, dynamic and regenerative, 147-150
Essay on Laughter, An, 417
Essay on the Principle of Population, 262
L'Etranger, 368
 Euclid, 271
 Eureka process, 245-265
European Painting and Sculpture, 385 n.
 Exaggeration, 409
Experiments in Telepathy, 190 n.
 Exploratory drive, neutral character of, 241-244; complexity of, 266-268
Expression of the Emotions in Man and Animals, 9 n.
 Extraconscious fields, in discovery and Arts, 332-335
Extra-Sensory Perception, 190-194

Family Reunion, The, 316
Fathers and Sons, 369
Faust, 306, 376
 Ferenczi, 172
 Fictional characters, mental representation of, 360-363
 Fields, emotional value of, 283-288
Finnegan's Wake, 271, 311
 Flash, defined, 20

 Foerster, 337, 338
 Form, in man-made objects, 396-399
 Forster, E. M., 376
Forsyte Saga, The, 369
Fountain, The, 376
 France, Anatole, 95, 245, 250, 251
 Francis I, 398
 Frazer, J. G., 175
 French Revolution, 250
 Freud, Sigmund, 4, 5, 17, 19, 21-25, 31, 32, 43, 59, 66, 68, 93, 97, 98, 116-118, 120, 131-134, 153, 154, 173-175, 184, 185, 200, 204, 208, 214-216, 218, 222, 234, 255, 268, 272, 280, 316, 317, 333, 336, 373, 417, 421-430
 Freudian instincts, 131-134
From Ritual to Romance, 311
 Fulton, 280
 Function, in man-made objects, 396-399
 Functionalism, 397, 398

 Galileo, 131, 233, 257 n.
 Gall, Franz, 158 n.
 Gaskell, 279
 Gestalt psychology, 8, 131 n., 256, 356, 386 n.
 Gestalt school, 39, 40 n., 402, 403
 Giorgione, II, 388, 411
 Giotto, 388
Gnomic Verses, 389
 Goethe, 259, 311, 385
Golden Bough, The, 311
 Goldstein, K., 400 n., 401
 Goldwater, R., 413 n.
 Gothic, in Art, 399
 le Goya, Francisco, 403, 412
Great Inquisitor, The, 368
 Gregory, J. C., 14, 14 n., 55 n., 56, 105, 417
 Greig, J. Y. T., 4, 417
Grey Eminence, 368
 Groos, Karl, 391
Group Mind, The, 187
Guernica, 313
 Guitry, Sacha, 103

Hamlet, 306
Hamlet and Orestes, 323 n.

- Hauptmann, Gerhart, 366
 Head, H., 61, 107
 Hedonism, 405
 Heine, Heinrich, 21, 22, 245
 Hemingway Ernest, 33, 307, 412
Henry V, 103
 de Heredia, José, 310 n.
Hernani, 250, 306
 Hero of Alexandria, 257 n.
 Hettinger, 191
 Hiero of Syracuse, 251
 Hitler, Adolf, 45, 72, 79
 Hobbes, Thomas, 56
 Hogarth, William, 295
 Homer, 295, 320, 385, 388
Horizon, 392 n.
 Horney, Karen, 222 n., 223, 226 n.
How Native: Think, 175 n., 176 n.
 Hugo, Victor, 250, 251, 306
 Human body, its form and function, 394-395
 Humour, and rise of civilization, 67-70
 Huxley, Aldous, 367, 368
 Huygens, Christian, 131
Hypnoanalysis, 392 n.
- Ibsen, Henrik, 367, 370
 Identification, and magical participation, 299 ff.
Idiot, The, 368
 Illusion, aesthetic value of, 295-299; emotional dynamics of, 299-303; technique of, 304-316; in Art, 413 ff.
 Imagery, sources of, 343-347
 Impersonation, as subcategory of bisociation, 76
 Implicitness, in Art, 310-312; in literature, 317
Incest-Motiv in Dichtung und Sage, Das, 367
 Industrial Revolution, 206
 Instinct-renunciation, 212-215
 Integration, by institutional control, 162-165
 Integrative metabolism, 374
 Integrative tendencies, thwarting of, 177-179; and bisociation, 277-279
 Integrative tendency, 120; biological foundation of, 130-154; and parasympathetic system, 279-282
Intellectual Functions of the Frontal Lobes, The, 61 n., 183 n.
Interpretation of Dreams, 336, 422
 Introjection, 182
- Jaensch, E. R., 182, 361 n., 391
 James, William, 38, 64, 67, 343
Jean Christophe, 368
 Jeans, James, 233
 Jesus, 146, 323, 371
 Johnson, Samuel, 384
 Joke, common pattern of, 24-26
 Jonah, 374
 Joyce, James, 307 n., 310, 311
 Jung, Carl, 43, 327, 371 n., 373 n., 408 n.
- Kafka, Franz, 95
 Kalmus, H., 147 n.
 Kant, Emmanuel, 4, 50, 259, 346, 388
 Kepler, Johannes, 233 n., 242, 257 n., 270, 330, 331, 416
 Kinaesthesia, 390-393
 Koffka, Kurt, 403
 Köhler, Wolfgang, 40 n., 43, 131, 256, 258, 267, 352, 356 n., 403
 Kretschmer, Ernst, 183, 344
Kretschmer's Textbook of Medical Psychology, 182 n.
- Lalo, 386
 de Lamarck, Jean, 259, 260
 de Lamartine, Alphonse, 334, 347
Language and Thought of the Child, 82 n.
 Lashley, K. S., 44, 44 n., 51 n., 52 n., 164
 Laughter, as luxury reflex, 3-16; definition of problem of, 4-7; reflex character of, 7-13; references to in Old Testament, 55; unsolved problems of, 66-67; pathological, 107-108
 Law of Economy, 350-354
 Law of Participation, 174, 299, 300
 Lawrence, D. H., 376
Lay of the Great Fool, The, 368
 Le Bon, Gustave, 185, 187 n.

- Lee, Vernon (Paget, Violet), 391
Leviathan, 56
 Lévy-Bruhl, Lucien, 174-176, 299,
 300 n., 301 n., 302 n., 303 n.
 Life instinct, 280
*Lines Written Among the Euganean
 Hills*, 326
 Linnean Society, 263
 Lipps, Theodor, 391
 de Lisle, Leconte, 310 n.
 Listowel, 385 n.
 Loeb, Jacques, 44

 Macleod's *Physiology in Modern Medi-
 cine*, 280 n.
Magic Mountain, The, 376
 Mahomet, 146, 371
 Mallarmé, Stéphane, 310, 317, 412
 Malraux, André, 380
 Malthus, Thomas, 262, 263, 264
Man Who Died, The, 376
 Mann, Thomas, 376. *See The Magic
 Mountain*
 Marey, Étienne, 12, 13
Marriage of Figaro, The, 313
 Marston, W. M., 197
 Marx, Karl, 159, 316
 Marx Brothers, 104
*Mass Psychology and Analysis of the
 Ego*, 184
 Matisse, Henri, 387
 Matthews, Patrick, 259
 Maudsley, Henry, 8 n.
 McDougall, William, 56, 132, 184 n.,
 187, 242, 282
Meaning of Meaning, The, 240 n.
*Le Mécanisme de la physionomie
 humaine*, 11 n.
 Melville, Herman, 375
 Mendel, 262
Mentality of Apes, The, 256, 267 n.
 Metaphor, in literature, 317-332
 Metapsychology, Freudian bias in, 215
 Metre, 348-354
Moby-Dick, 375
 Molière, 430
 Morgan, Charles, 376
 Morgan, T. H., 137, 142
 Murray, Gilbert, 322, 323 n.
 de Musset, Alfred, 334

 Narrative and flash, 17-24
 National Socialism, 230
 Natural ethics, foundations of, 188-
 190
 Naturalism, 305-307, 370
 Natural Law, 232, 234
 Nature and visual arts, 383-416
Nature of Laughter, The, 14 n., 417
 Neutral arts, 239-244; emotional dy-
 namics of, 266-273; continuity of,
 268-271; and education, 271-273
New Statesman and Nation, 410 n.
 Newton, Eric, 385 n., 412
 Newton, Isaac, 53, 131, 149, 249,
 255, 257 n., 268, 272
New Ways in Psychoanalysis, 224 n.
New Yorker, 89
Next Development in Man, The,
 330 n.
 Nietzsche, Friedrich, 310
 Night Journey, 371-380
 Nonsense humour, 99-102. *See also*
 Bergson, Henri; Carroll, Lewis;
 Eastman, Max; *Alice in Wonder-
 land*

 Obscurity, in Art, 310-312
Odyssey, The, 302
Oedipus at Colonnus, 385
Oedipus Rex, 240, 369
Of Human Bondage, 368
 Ogden, Charles Kay, 240
 Old Vic, 295
Old Wives' Tale, The, 369
 Olivier, Sir Laurence, 290, 299
On Growth and Form, 384
 Operative field, concept of, 38-40;
 examples of, 40-43
 Operators, explicit and implicit, 44-
 47
 Optimism, 228, 229
 Originality, of bisociation in narra-
 tive, 304, 305
*Origin and Nature of the Emotions,
 The*, 67 n., 205 n.
Origin of Species, The, 259, 260 n.
Origins of Love and Hate, The, 178 n.
 Orwell, George, 95, 345
 Ossian, 410
 Ovid, 311

- Parasympathetic system, 279-282
 Parody, 76
Partisan Review, 341 n.
Paul et Virginie, 367
 Pavlov, Ivan, 184 n., 379
 Pearl, Raymond, 151
Penguin Island, 95
 Perfection, idea of, 406, 407, 408
 Petronius, 30, 397
 Pflüger, Edward, 8
Philosophy, 147 n.
Physical Basis of Heredity, The, 137 n.
Physiological Foundations of Behavior, 140 n., 158 n.
 Physiology, of thought and emotion, 59-64
Physiology of the Nervous System, 280 n.
 Piaget, T., 82, 82 n., 172, 173
 Picasso, Pablo, 271, 310, 313, 334, 413
 Planaria, physiological isolation of, 141
 Planck, Max, 270, 272
 Plato, 4, 55, 314, 320, 408
 Play and Imitation, 75-76
 Pleasure-tone, 208-212
Plumed Serpent, The, 376
 Plutarch, 365
 Poetic imagery, in literature, 317-332
 Poetic inspiration, sources of, 333-347
 Poincaré, Jules, 270
 Pope, Alexander, 200
Possessed, The, 367
 Primitive organisms, 140-143; physiological isolation and self-assertive tendencies in, 140-143
Principles of Literary Criticism, 350 n., 351
 Progressive rebound, 146, 147
 Projection, 181
Prometheus Unbound, 327
 Protoplasmic consciousness, 172
 Proust, Marcel, 307
 Psychoanalysis, 39
Psychologie des sentiments, 4, 5
Psychology of Laughter and Comedy, 4, 417
Psychology of the Unconscious, 371 n.
Psychopathology of Everyday Life, 422
 Ptolemy, 330
 Pun, common pattern of, 23-26
Purgatorio, 311
 Pythagoras, 272
 Quantitative scales, 86, 87
 Rabelais, François, 30
 Raphael, 307, 412
 Rationalism, 228, 229
 Raulin, L., 6, 11 n., 12, 13
Recent Advances in Neurology, 183 n
 Regression, 146, 147, 200-203
 Reid, L. A., 392 n.
 Reik, 367
 Relevance, in narrative, 304, 305; and convention, 307, 308, 406, 407
 Rembrandt, 211, 311
Research Publications of the Association for Nervous and Mental Diseases, 61 n.
Revue philosophique, 8 n.
 Rhine, Joseph B., 190-193. *See Extrasensory Perception*
 Rhythm, 348-354; and sound association, 335-341; and Law of Economy, 350-354
 Ribot, Théodule, 4, 5
 Richards, I. A., 240, 350 n., 351
 Richet, Charles, 11, 13
 Richter, Jean Paul, 421
Le Rire, 5, 417, 418 n.
Le Rire et les exhalants, 11 n.
 Ritter, W. E., 136 n., 159
 Robertson-Smith, 175
 Robespierre, 250
 Robinson, L., 106
 Roget, Peter, 5, 6, 10, 25
 Rohrschach test, 100
Romeo and Juliet, 367
Le Rouge et le Noir, 368
Rougon-Macquart, The, 369
 Rubens, Peter Paul, 240, 403, 410
 Ruskin, John, 416
 de Saint-Exupéry, Antoine, 380
 Saint-Hilaire, G., 259
 de Saint-Just, Louis, 250

- Saturation, in Art, 308-310
Satyricon, 30
 von Schiller, Johann, 343
 Schopenhauer, Arthur, 17, 23, 152, 208, 324, 325 n.
 Schrödinger, Erwin, 271
 Second International, 229
 Self-transcendence, primitive and infantile forms of, 171-179; general forms of, 180-194; and group psychology, 185; biological handicaps to, 234-236
 Self-transcending emotions, neglect of, 204-207
 Self-transcending tendency, intrinsic nature of, 195, 196
 Senescence, 150 ff., 156
Sense of Humor, The, 417
 Sensory agreement, role of, 400 ff.
 Seurat, Georges, 416
 Shakespeare, William, 103, 365, 369, 430
 Shaw, George Bernard, 103, 368, 430
 Shelley, Percy Bysshe, 325, 326, 329 385
 Simplification, in Art, 409
 Soal, 191
 Social wholes, regeneration of, 165-167; instability and regenerative equilibrium of, 224-226
 Sociology, continuity of, 157-162
 Soddy, Frederick, 190
 Spencer, Herbert, 4, 58, 59, 64 n., 66, 115, 132, 206, 423
 Spender, Stephen, 341, 342
 Spengler, Oswald, 158, 208
 Stendhal, Henri, 316
 Strauss, 44, 182 n.
 Strindberg, August, 370
Study in Aesthetics, A, 392 n.
 Stylization, 81, 305-307
 Sublimation, 200-203
 Sully, James, 6, 12, 17, 104, 105, 310 n., 417, 418
 Sully Prudhomme, René, 310 n.
 Suttie, 178 n., 234
 Swift, Jonathan, 95, 311
 Swinburne, Algernon, 319, 320
 Synaesthesia, 319
 Taillefer, 294
 Taoism, 219
 Tchekhov, Anton, 103
 Tchernak, 262
Text-Book of Medical Psychology, 344 n.
Thesaurus of English Words and Phrases, 5; quoted, 6, 10, 25
Thibaults, The, 369
 Thompson, D. W., 384
 Thorndike, Ashley, 257
 Tickling, 104-107
Time, 327
 Tolstoy, Leo, 310, 311, 312, 316, 376
 Traces, "multiple attunement" of, 47-50
 Tragic and trivial planes, meeting of, 371-380
 Treves, M., 413 n.
 Twain, Mark, 428
 Tylor, J. M., 175
 Tyrrell, 191
 Uccello, Paolo, 255, 308
Unity of the Organism, The, 136 n.
 Utilitarian ethics, 228, 230
 Valentine, C. W., 392, 404
 van Meegeren, 410, 411
 Vehicle function, 199, 200
 Verbalization, difficulty of, 389, 390
 Verlaine, Paul, 311
 Vermeer, Jan, 410, 411
 da Vinci, Leonardo, 398, 403, 412, 414
 Voltaire, 268
Voyage to the Houyhnhnms, A, 95
 Wallace, A. R., 262, 263
 Warcollier, 190
Waste Land, The, 311, 376
 Wells, H. G., 367
 Wells, W. C., 259
 Wertheimer, Leo, 403
 Weston, J. L., 311
 Whyte, L. L., 330
 Wilde, Oscar, 30, 103
 Willendorf, 394
 Wit, creation of, 247-251

- Wit and Its Relation to the Unconscious*, 5, 66, 417
 Witticism, common pattern of, 23-26
 Wolberg, L. R., 392, 404
 Woodruff, 151
 Wordsworth, William, 385
 World War I, 397
 World War II, 380
 Wundt, Wilhelm, 344, 346
 Yale University, experiments in tickling, 106
 Yeats, William Butler, 349
Togi and the Commissar, The, 190 n.
 Zola, Émile, 370

