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A HISTORY OF PSYCHOLOGY

BY

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VOL. II

MEDIÆVAL & EARLY MODERN PERIOD

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PREFACE

THE first period of the history of psychology was described in a volume published in 1912 under the title, *History of Psychology: Ancient and Patristic.* The volumes now published comprise (*a*) the mediæval and early modern period, forming this (second) volume, and (*b*) the nineteenth century, forming a third volume.

The original plan of work has been retained without more change than the differences of the material required. As originally planned this history was to record, in their chronological order, the steps by which psychology has reached its present stage of development. At the same time indications would be given of the relation between psychology and those phases of human thought to which it was allied. The complexity of the result is due to the subject-matter. No one will deny that psychology has intimately affected many spheres of human thought: religion, metaphysics, logic, ethics, politics, sociology, pædagogy, criminology, and other subjects have all felt its impact; in a different way, physics, anatomy, physiology, neurology, chemistry and the general theories of organic life have stood in close relation to its successes and failures: a history of psychology must therefore be highly complex, and any attempt to construct a record of all its currents and cross-currents is sure to seem irrelevant in some respects, inadequate in others.

In order to cope as well as possible with the material, each period has been treated on the same plan. First comes an estimate of the condition of those sciences which at the time were clearly important in the eyes of the authors whose work is to be treated: next comes the description of the works upon psychological topics written

during the period: to this is added an account of the general influence of psychology and of the applications of the theories during the period in question. While this conception of the subject involves a large amount of material, an exhaustive encyclopædia of all known writers or works was never contemplated: if it were possible to realize such completeness in the earlier stages, it would still be an unattainable ideal at the later periods. In any case the powers of the historian dwindle perceptibly as his perspective grows shorter. The limit of this work was fixed at the close of the nineteenth century, and that limit has only been overstepped where the line of thought or the sequence of an author's work required completion.

In view of some criticisms passed upon the former volume, some further remarks may be pardoned. A history of a science is a unique species of history. For the content of the science the student may go to the last textbook, where he may learn the established truths without any reference to their genesis or to the men who established them. For those who require no more a history is superfluous: it can add nothing to that knowledge and may be wholly disregarded. But there is another and a different object for which it has a specific function. If the student is not to be left with the idea that knowledge is a fixed quantity of indisputable facts, if on the contrary he is to acquire a real understanding of the process by which knowledge is continually made and remade, he must learn to look at the movement of ideas without prejudice as a separate fact with its own significance and its own meaning for humanity. To despise forgotten theories because they no longer hold good, and refuse on that account to look backward, is in the end to forget that man's highest ambition is to make progress possible, to make the truth of to-day into the error of yesterday—in short, to make history.

Psychology is in some sense a new science, but it has progressed far enough to be conscious of its own claims. It seems, therefore, worth while at this stage to give it the support which may be derived from history. The importance claimed for that history is derived from the

ideas expressed above. It is not the kind of importance which belongs either to new discoveries or to antiquarian lore. It is rather the importance that belongs to the great panorama of human effort which it consistently unfolds. However many new psychologies rise and fall, however much the final solution of all problems seems to us to be given only to our own generation, it will still be worth while to contemplate this spectacle of a quest which has called forth from the beginning of time the most passionate desires, the most distorted theories, the most bitter disputes, and the most refined thought possible to the human being. It is not for the historian to utter prophesy, but the eye which surveys the whole course of this subject from its meagre beginnings to its present vastness cannot but anticipate a future growth no less significant and perhaps of incredible importance to the human race.

No exhaustive bibliography has been appended to this record, but the student will find at the end a list of those works which have been actually used, and in the notes special references are given for particular topics. The fashionable habit of printing very long and sometimes very indiscriminate bibliographies can be neglected in this case without scruple, since the diligent can always appeal to Baldwin's *Dictionary of Philosophy and Psychology*. Since the publication of my former volume the histories of Klemm and Dessoir have appeared. These are gratifying signs that interest in this subject is increasing. Klemm's work is masterly, but obviously intended for the devotee of laboratory work: Dessoir's brochure is a good supplement to Klemm in respect of its greater diffuseness and more generous recognition of the variety of psychological interests: neither of these could be regarded as serving the ends for which the present work is designed, since in both cases the plan is not equally comprehensive and the concrete setting of the theories is not indicated sufficiently to enable the student to see what were the limitations, the aims, and the real merits of the various theories named or described.

G. S. B.

August 1920.

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PART I

THE BACKGROUND OF MEDIÆVAL THOUGHT

CHAPTER I

THE INFLUENCE OF THEOLOGY

§ 1. In its progress from Plato through Aristotle, the Stoics and the Christian Platonists, the doctrine of man underwent a continuous evolution. Parallel with this process there was also an evolution of religion, and on closer inspection it is obvious that the two processes interact. When the psychology becomes predominantly naturalistic it produces an antagonism toward the current theory of the gods: on the other hand, when it is either spiritualistic or rationalistic it forms an alliance with the supernaturalism of the period, and the two theories, of the gods and the souls, become mutually complementary. With the increased subjectivism of the third century in the Christian era this interaction of religion and psychology becomes so marked that the religion becomes psychological, and the psychology utilizes religion as a regulative standard. This phenomenon deserves a more detailed inspection both for its intrinsic importance and its historical significance.

The early history of human thought shows that level of reflection which has been called Animism. At that stage the world outside the individual is regarded as having life like that of man: the religion of nature was founded on this animistic view, but it was not a psychological religion: nature was regarded as having life and motion, but not consciousness. That view of the world passed away as man became more occupied with his own power of thought and learned to make a distinction between mind and matter. This new distinction was then itself projected: God for Plato was separated from the material world as the soul may be separated from the body. Instead of motion, conduct becomes at this stage the focus of

attention, and a more definite form of anthropomorphism is evolved. The Stoics and Neoplatonists were clearly carrying on in the terms of their analysis of consciousness that anthropomorphism which had been at first elaborated in terms of the physical description of man. This was the main characteristic of the new thought which ran its course from Chrysippus to Plotinus, passed over into Christian Platonism, and so became the foundation of mediæval thought. As the old religion was animistic, so the new religion was made psychological, and the latter is distinguished from the former only by the degree to which, in the interval, thought had become explicitly subjective.

A philosophy become religious and a religion waiting to become philosophical confronted each other in the second century of the Christian era. The meeting-point of the two tendencies was Alexandria, and the question before the world was the possibility of uniting these two ultimate terms, philosophy and religion, in a further and final reduction. In Neoplatonism the senses received a partial condemnation: reason, the other half of the mental powers, was given a temporary superiority. By Christianity the feelings were again reinstated: love was proclaimed superior to pure thought and held a distinct place in the enumeration of the powers of the soul all through the Middle Ages.

During the second, third and fourth centuries the science of the mind seems at first sight to have completely lapsed. That was not actually the case, but it is easy to get that impression because the subject becomes involved in the theological disputes of the period. As we noted above, at a certain stage in the development of thought the physical aspect of life is found less interesting than the psychical, and this was the case during the fourth century. The reconstruction of theology during this period was dominated by the received opinions on the soul and, conversely, the decisions reached act through the Middle Ages as the guiding lines for the development of all theories of the human soul. It is easy to lose sight of this fact because the language is now foreign to our ears: discussions about the nature of God, the humanity of Christ, or the original state of man seem far enough removed from the true sphere

of psychology. Yet on consideration it is obvious that this is a very important stage in the history of psychological theory. When Augustine said "I desire to know God and the soul" he was directly formulating the scope of psychology for many succeeding centuries. Though he may not have been fully aware of the fact, his own treatment both of God and the soul was a complete fusion of theology and psychology. It was the Augustinian influence that made the spiritualists of the nineteenth century speak of the powers of the soul as a copy of the Trinity; it was from Augustine that men acquired the habit of treating such problems as the origin of language in the form of discussion about the possible ways in which Adam may have named the animals. To pass over this period in silence would be to ignore the real beginning of many important inquiries, though that beginning was indeed obscure and veiled in curious terms.

§ 2. The results of the various disputes which affected the idea of the soul may be grouped under three heads, according as they are concerned with the intellect, the will or the passions. With regard to the intellect, we have to notice that the Alexandrian tendency to lay emphasis on knowledge as the chief factor in spiritual development was checked and more importance attached to the will to believe. From the time of Clement of Alexandria there had been in the Church a growing opposition to the doctrine of Gnosis: this was thought likely to encourage the idea that salvation could be acquired by the individual's own gradual development without the need of faith in Christ. Against this Platonizing tendency the Fathers and the Councils set in opposition the doctrine of Faith, already begun by Paul and not really abandoned by the Alexandrian School. The outcome was a fresh analysis of the nature of religious experience which, at the hands of Augustine and other writers, became a singularly complete statement of what may be regarded as the essential nature of that aspect of mental life. At the time when this analysis was made it really supplied the place of a doctrine of the feelings. The eighteenth century evolved its idea of a threefold

division of mental powers from the consideration of æsthetic feelings, which they saw could not be classed as forms either of intellect or will. Augustine was not far from the same standpoint, and his language at times suggests the same threefold division into knowing, feeling and willing. Whenever after Augustine we find men breaking away from the current psychology of their day to develop the idea of Love as something which is neither wholly intellect nor wholly will, we must acknowledge that they are preparing the way for the final development of æsthetics and the consequent recognition of feelings as a specific class of psychological phenomena.

For Augustine the love of God was not only a feeling: it was also a duty. In the spirit of his age he failed to distinguish between the psychological nature of such mental stages and their ultimate value. Thus he was led to consider the love of God as in part an act of will necessary for salvation.

At this point the interest which had hitherto been directed toward the intellect was directed to the will. It seemed as though the will could be regarded as equal in all men, so that, if there were differences in the intellectual endowments of individuals, there would yet be a common denominator in the will. There is, perhaps, no more persistent fallacy than this. To abstract the will from all other aspects of consciousness and assert that one can at least have good intentions, seems to be an inherent vice of human nature. The average mind of the twentieth century still harbours the belief that, however defective a person's general development may be, there is still no excuse for not having "good intentions." The dilemma which confronted Augustine is obvious. As the intellect cannot make men wholly like God, and yet it seems as though the prize of immortality should be given as a reward for effort and self-improvement, it was natural to say that the will was the means by which man qualified himself for God's forgiveness. But as the limitations of the intellect are inherent in it and no man makes his own intellect, so there is no logical reason why the will of the individual should not have its inherent limitations and

by its very nature be incapable of some activities. From this point arose the Pelagian controversy. Pelagius maintained that man by his own will could choose the good; the act of grace was merely auxiliary, and redemption was obtained largely by the merit of the individual. Augustine opposed this theory. At an earlier stage of his teaching he had come to the conclusion that the essential factor in a moral life is the good will (*bona voluntas*). He had already laid down the principle that knowledge of God is impossible without faith, that is to say without a sympathetic reception of truth. Brought face to face with the problem of will, he realized more fully what his own doctrine implied, that it is impossible to get the good will if it is not given by nature or grace. Augustine seems to have realized that the will is really a function of the whole nature of man, and therefore dependent ultimately on that nature; the will expresses what we are, and we cannot will to be what we are not; conversion is not an act of will but a change of nature, preceding any possible change of will.

Thus the doctrine of predestination was formulated. Into its theological significance we need not diverge, but there are some other aspects of Augustine's teaching that should not be overlooked. In its psychological significance the doctrine of predestination is a restatement of Plato's description of the lie in the soul. It involves the fundamental position that some mental states are of such a kind as to prevent the individual from grasping or realizing the moral significance of actions. Predestination is a doctrine which frankly and fully admits that some persons are devoid of the psychological factor called conscience. A modern psychologist would insist on predestination if he adopted the language of the Pelagian dispute. Augustine was eminently right both in admitting the fact of moral blindness and in reserving the possibility of reform " through grace." Whether his doctrine is repugnant to the Christian conception of divine benevolence is a question we do not profess to discuss. It was on experience and on psychology that Augustine based his doctrine; on that basis he was right in asserting that moral progress depends on the good will, and that if a man lacks that will there is no

possibility of making so much as a beginning of moral development.

Thus the question under discussion involved great issues. It involved first of all the question of heredity, or, in the language of that age, the question of original sin. The breadth and depth of this problem was not fully grasped, but the higher plane on which the question is discussed raises the whole matter above a mere doctrine of responsibility. Aristotle could be content with the question of freedom in action; he could lay down rules for fixing responsibility and add a mere description of types of character. But here the question is that of responsibility for the character, a question that Plato had dealt with only through the medium of myth. Augustine sees the individual from the standpoint of eternity and understands that actions proceed from character and that the difference of character is an ultimate and insoluble mystery. It was the habit of his age to determine insoluble mysteries by dogmatic conclusions. From the transcendental standpoint the action of the evil nature is sin, and whether the evil nature is inherited or acquired, it remains sin. Here the Christian Father passes beyond the limits of Greek thought and of psychology. If the logic of predestination had always been clearly understood, later ages would never have lapsed into the psychological absurdity of supposing that sin is necessarily wilful or crime always a conscious rejection of the good.

Next to the intellect and the will come the affections. Here we must return again to the theological and Christological problems. The early Hebrew writers felt no difficulty in assigning to God the passions of anger, envy and jealousy. The later writers refine the idea of God and admit, at most, righteous indignation, united with love in its most refined and elevated form. Christian writers speak of the wrath of God, and Lactantius wrote a treatise on that topic; but generally speaking God is removed beyond the sphere of affections and the interest formerly directed to that problem is now directed towards the affections of the God-Man. Some writers denied to Christ all feelings, particularly those who followed the Greek theology

and the Eastern tendency to see in Christ only a Logos somewhat indefinitely related to a human form. But the main tendency was to assert complete humanity and therefore the power of feeling all human emotions. The language of the Gospels could be quoted to prove that Christ wept, hungered and felt fatigue. These human touches could be admitted because they satisfied the desire for an ideal that did not exclude sympathy. The deeper problem came later, when it was seen that full humanity involved also the tendencies regarded as specifically evil. It was characteristic of Augustine that he should include among these tendencies even concupiscence. This was felt to be contradictory to the whole mass of feeling which controlled the minds of those who formulated this ideal nature. The discussion produced the important decision that evil does not consist in feelings, but in the conscious adoption of feelings, a doctrine already involved in the Stoic theory of "assent." In spite of the problems raised by the curiosity of individuals, the ideal character was expressed in accordance with the fundamental feelings of mankind upon these questions, and therefore formed an abiding testimony to the character of human thought.

As Plato rightly points out, the life of the soul is to be regarded as the continuous expansion of a fundamental impulse (ἔρως) which shows itself in many forms, chiefly in the impulse to act, to find satisfaction through relations with other kindred beings, to attain knowledge, and to satisfy the desire of continuity. This notion, which is more explicitly stated by later writers, is the fundamental idea that the basis of progress is self-expression. The highest form of this self-expression is seen in the way by which consciousness evolves more and more elaborate schemes of life and at the same time refines the details involved. When the level of conscious theorizing is attained and the individual becomes more distinctly aware of the relation between thought and action, those activities which seem to belong to him as an organic creature but do not proceed from his will are reckoned as outside his "self" and therefore ultimately negligible. The automatic functions of the body are thus grouped together as "lower

functions"; they become dissociated from the self, which is increasingly thought of as limited to activities of the mind. The scientific attitude of Aristotle temporarily arrested this development, but it was continued by the Stoics in the most pronounced manner. Self-expression then became associated with self-repression; the wise man is capable of extending the range of his being by definitely overcoming all those elements of his composite nature which had been described as "irrational" and therefore were to be regarded as the limit of the rational powers. Here we have, explicitly stated, the positive and negative movements of thought, namely self-expression as the realization of conscious control and the closely allied self-repression which is involved in the thought of self-sufficiency (*αὐτάρκεια*). The men who figure in history, and to whom alone a history of theory is able to make reference, are selected individuals above the average level, and have an exceptional consciousness of the relation between desire and restraint. Differences in circumstance and training lead to different ways of formulating this inner dualism, but in religion and philosophy the subjective factors are most obvious because in both there is a tendency to go beyond that objective control which seems to prevent science from being so distinctively personal in its results. One can hardly fail to see in the Stoic doctrine evidence of the tendencies described above. During the period of the Christian Fathers, from the Alexandrian School to Augustine, we find the results of Platonic and Stoic thought continuing to affect the structure of theories, largely because the individuals were continually driven back upon those very emotions and desires which produced the Stoic scheme of thought. Interest in the animal nature of man almost entirely dies out; there is no further attempt to study man as a physical organism, or even to allow considerations of that side of his nature to obstruct the flights of speculation.

§ 3. One point, regarded as fundamental, ultimately remained undecided. That was the origin of the soul. The Synod of Constantinople (553 A.D.) finally rejected

Origen's view that the soul had a pre-existence and that its incarnation was a fall. But the rejection of this speculative Platonism left the question still undecided, some retaining Tertullian's traducianism, others maintaining the theory of creation. According to the former, the soul is transmitted from parent to child, and this was felt to be undesirably naturalistic. According to the latter, physical generation concerns only the body, the soul being created for each body separately by God. This became the most general theory in the West, being clearly the hypothesis required to supplement the belief in the supernatural character of the soul and its ultimate return to God in a body that was not physical. Upon this point it is clear that a modified Platonism was the theory most acceptable to the Church.

CHAPTER II

SCHOLARSHIP AND TRADITION

§ 1. FROM this phase of our subject—human, all too human —we may turn to the dry light of scholarship. Next in importance to the corrupted Platonism of the fifth century was the work of the interpreters who claimed to present in their commentaries the real mind of Aristotle. First and greatest was Alexander, of the Carian town of Aphrodisias, a man skilled in medicine, competent to understand the master's interest in nature, yet at the same time not wholly free from the fascination of a cosmic philosophy. Next in importance to Alexander comes Themistius; after these two Johannes Philoponus, Simplicius and Priscianus Lydus are most frequently quoted by later writers. Alexander belongs to the third century; Themistius to the fourth; Simplicius to the sixth, with Priscianus and Philoponus. Alexander was a Peripatetic who lived in Athens; the others were either Neoplatonic or eclectic. Simplicius and Priscianus belonged to the group of philosophers who fled after 529 A.D. to the court of Chosroes, the Persian exile of the philosophers. It was not Aristotle but Theophrastus whom Priscianus undertook to explain to Chosroes; but Theophrastus was for him only another Aristotle.

The writings of these commentators are chiefly interesting to the student of classical scholarship. So far as concerns the substance of Aristotle's teaching, no fundamental changes were made, but the process of transmission changed the whole outlook gradually and subtly. The character of this change can be indicated in a few words. Alexander was conscious that the master's writings were somewhat behind the times; Aristotle had not the advan-

tage of the discoveries made at Alexandria and used by the Neoplatonists; and Aristotle also had said too little about those parts of man's nature which ethics had since made prominent, namely independent individuality, subjective activity (the Stoic "assent") and kindred points. Wherever the chance offers itself, Alexander touches up the Aristotelian dicta in that kind of improving spirit in which J. S. Mill edited his father's *Analysis of the Human Mind*. For the classical scholar the first problem is that of the relation between Alexander and Aristotle; for the student of history Alexander is an independent figure representing the Peripatetic school in its last phase.

While Neoplatonists studied Aristotle, the Peripatetics showed no tendency to adopt the Neoplatonic way of thought. The points common to Alexander and his contemporaries in the Neoplatonic circle are due in both cases to Stoicism. The Stoics had put the idea of activity in the forefront, and in the forefront it stayed. Thus we find Alexander despising the idea that sense impressions are really impressions, actual elevations and depressions made on the mind. Sensation is activity, and therefore (an important point) the images left by sensation must also be activities. A passage in the *Problems* of Aristotle seems to have given the cue for this treatment, and that again goes back to the older formula: the *mind* sees, the *mind* hears. The amendment introduced by Alexander seems to have been further emphasized, for Philoponus records the creation of a new term for attention. While the verb (προσέχειν) was old enough, there was no distinctive noun and no separate faculty. The more recent interpreters, says Philoponus, have added to the five recognized faculties (intellect, discursive reason, opinion, wish and choice) a new faculty of attention (τό προσεκτικόν). Philoponus is also a little puzzled to know whether this faculty is merely another name for actual consciousness, or something distinct.

The name seems to be the most novel part of this discovery. It is interesting to notice that a similar evolution took place in the treatment of Imagination. In the *Life of Apollonius* Philostratus gives a definition of Imagination which clearly implies a creative element in its work. In

Plato the artistic creations of the mind are essentially reproductions, if not of earthly at any rate of prenatal experiences. That might be called another way of saying that genius creates. Possibly Plato was nearer the truth than Philostratus; but Philostratus was a Sophist, a conscious artist in images, and lived at a time when refinements in thought and terminology were much in vogue. The credit of coining a new name for an old notion seems to lie with Philostratus, and is clearly part of a general tendency among the literati of the age.

To return to Alexander. His first contribution to the progress of ideas is the emphasis on activity. In the sphere of the senses we find him discussing the theories due to the progress of medicine after Aristotle, especially theories of vision; here his work is of little importance either in its character or its influence. The best known part of Alexander's comments is that which deals with the doctrine of Reason. Intrinsically this is subtle and not profitable; historically it is important for the part it played all through the Middle Ages, in the East and the West.

Aristotle distinguished the passive from the active reason, leaving no clear statement upon either the nature of these or their relations. Probably no more was meant than a distinction of content and activity; what a person thinks is dependent on his time, place and conditions in general; the power to think is thus presupposed, and must be defined as not similarly dependent on time and place. Taking the whole organism as the subject for analysis, the "form" is the final cause, the life of reason for which man seems destined; the "matter" is the progressive experience of sense, imagination and calculation, which Reason sets in order. Thus far Aristotle went, keeping close to his inductive basis yet unwilling to content himself with pure empiricism: whatever he thought Reason to be, it was not for him a "transformed sensation"; it was rather the transforming agency.

Between the days of Aristotle and of Alexander the organism had been described more as a unity of distinct things, a coexistence of soul and body, as Plato regarded it. Alexander's attempt to revive the Peripatetic doctrine

of form and matter was confused by this (Neoplatonic) line of thought. Alexander ended by applying his analysis to the mind alone and evolving within the limits of Aristotle's, "Form" a fresh distinction of matter and form. In consequence there are three "Reasons," the material (νοῦς ὑλικός, *hylicus, materialis, passivus*), the acquired (νοῦς καθ' ἕξιν, ἐπίκτητος, *in actu, habitualis*) and the Pure Reason (νοῦς ποιητικός, *agens, actualis*). Under these various names we shall meet these three degrees of the soul during the whole mediæval period. The first is merely the power to acquire knowledge, an undetermined or blank capacity; the last is transcendental, variously explained; the second is the state or "habit" which the soul attains through the action of the *intellectus agens* on the *passivus*.

Thus out of Aristotle came forth another transcendental theory, afterwards developed into a cosmic system by Averroes. Alexander probably intended to give an explanation of Aristotle that would eliminate all suggestion of mysticism. If God acts only as the moving or generating principle, if the soul is not, as the Stoics said, a fragment of Deity, if finally a potentiality has neither beginning nor end just because it is not existence but only the possibility of existence, then the individual is completely isolated both from matter and from God. This point was not what attracted the Arabs; they fell at once into the error of supposing that the soul as produced was in the same condition as a soul that had emanated. Alexander, opposed to the Neoplatonic ideas, meant anything but that. According to him the Active Intellect comes to make the individual mind as a sculptor might make a statue out of marble; so made, it is a product, a separate independent thing. The point need not be laboured; in any case the limits of psychology are already transgressed and we must leave Alexander's theory till we meet it again in the Arab systems. None of the other commentators made history to the same extent as Alexander did; for the most part they followed his guidance.

§ 2. Already in the fifth century Plato and Aristotle were regarded as one consistent source of doctrine. Next

to that source must be put Cicero, a mine of useful quotations and a literary power whenever people had time for reading. Cicero, being distinct about nothing, was distinct from nothing, and so gave no trouble. The root of all evil to the later orthodox writers was Lucretius, who seems to have been highly valued as late as the ninth century, and afterwards cherished secretly and heretically until atomism flourished again in the sixteenth century. Among the earlier writers Arnobius (*c.* 300 A.D.) and Lactantius had given most attention to Lucretius; the former especially acted as a medium for opinions whose original source was afterwards not always known. In the later period Rhaban Maur and William of Conches were admirers of Lucretius, who must also have inspired the Cathari (p. 94). Another favourite source was Seneca, but his influence is indistinct. Among the Greeks, Theophrastus has already been mentioned as the subject of comments by Priscianus Lydus. His work *On Piety* was the source from which Porphyry of Tyre (230–300 A.D.) drew his arguments for the souls of animals. This solitary treatise on comparative psychology deserves to be considered sympathetically.

§ 3. The spiritualistic or theological tendencies described in the first chapter were not left in undisputed supremacy. As they were supported by dialectical arguments they were open to refutation by the same instruments. Porphyry undertook to do this, and the passages in his treatise on vegetarianism which deal with the proof that animals have souls are an interesting counterblast to some of the points mentioned above.

Porphyry's object is merely polemical, and we cannot treat his remarks on animal psychology as a serious contribution to the subject. As a Neoplatonist he has a quarrel with the Christian sects, and fastens on their habit of eating flesh as a proof of their moral depravity: they devour creatures that have souls like their own. The accusation requires to be supported with some proof that the said animals have souls in any sense like those of men and Christians. What are the alleged differences? Take first the question of Reason. This is either outgoing

or indwelling.[1] Clearly the animals have the former, for they understand each other: it is useless to say we Hellenists do not understand them, for neither do we understand the Scythians, whom no Christian would eat for all that. Further, some people *do* understand them—Apollonius of Tyana for example; and in any case we all acknowledge some degree of intelligibility in the sounds they make, for we distinguish signs of hunger, pugnacity, fear and so on. If, finally, this argument about speech is to be carried any further, what about the gods? Is their lack of speech a proof that they also lack intelligence, and why are they so little understood? Then as to the indwelling reason, this also must be conceded to animals. Animals seem to feel envy and engage in sexual rivalry: they have virtues after their kind, especially ants, bees and storks, of which group the last is the most important because its peculiar virtue is piety. In respect of their senses animals are superior to man, and everybody knows that practical reason is an affair of the senses. If the animals have no written laws, neither had man at first. The soul cannot change its nature, and all that it achieves is regulated by its union with the body. If this union prevents the souls of animals from achieving some things, it may make possible other developments of which we have no conception. Men and animals have at least one more point in common: they are both liable to go mad.

This spirited statement of the case in favour of animal intelligence has two points of interest for us at this stage. The first is its easy dialectic, showing the facility with which the most unlikely conclusions can be drawn from plausible premises. The same thing was being done on the other side, but the results were more in accord with the wishes or prejudices of mankind and have therefore been handed on with more respect and care. The second is the fact that in this essay, perverse and polemical as it is, we have the required antithesis to that transcendental psychology which was described before. Porphyry has grasped the fact that, if an argument is going to be transcendental, it will not matter in what direction the transcendence is

[1] The Stoic terms, see *H. P.* i. 173.

attempted. If animal intelligence is to be neglected or denied, why should so much be said about divine intelligence? The Neoplatonist had that advantage which he has held ever since: he was prepared to go up and down the scale of life indifferently. The prevailing religious tendency was to go up and not down, to discuss the relation of man to God or the gods and leave out of the system any reference to animals. If we now take in Porphyry, the scheme of the whole subject is completed. The central point is man, whose nature and activities are the real object of thought. This becomes more clearly defined on its inner side by the progressive discussion of the soul as a fragment or image of the divine mind, the latter being at the same time a moving image of changing ideas about the former. In respect of its outer side, the physical organism and the natural history of the mind, the reference to animals persists through the Middle Ages, but the whole subject lapses from official writings until the revival of the medical sciences. It is interesting to remember that Descartes, faced with the problem of adjusting the relations between animals, man and God, chose to make reason divine, the passions human, and animals machines.

CHAPTER III

PROGRESS OF DOCTRINES IN THE FIFTH AND SIXTH CENTURIES

§ 1. THE focus of interest during the fifth century was in questions that may justly be called religious. Whether we consider pagan or Christian teachers, the statement is equally true. In the case of pagan writers the tendency of thought is that which we call theosophical, and the main characteristics continue to be those of Plotinus. But, so far as concerns psychology, there is only a steady decline. The power of analysis shown by Plotinus does not reappear, but the latent possibilities of his system in the way of supernaturalism are developed beyond the limits of sane speculation. Omitting all the details of his teaching about metaphysical entities, we may notice that Proclus retained the doctrine of Plotinus that the soul occupies a position in the scale of Being between that which is divine and that which is sensuous (akin to matter). He also teaches, with Plotinus, that it has a power of free choice and may turn either toward the divine or toward the lower grades of being; and on this free choice depends the nature of its development. The one really significant fact in this teaching was its insistence upon the immaterial nature of the soul. This point was of some importance because, after the purely philosophical tendencies of the Christian Platonists, there had been signs of a reaction within the pale of Christianity. The Neoplatonists felt no inherent difficulty in asserting that the soul is essentially akin to that which they called divine. But for the Christian the nature of man seems to be infinitely distant from the nature of God, and this infinite difference leads to the rejection of a terminology that implies ultimate identity of substance.

Gregory of Nyssa had gone so far in the doctrine of human spirituality as to incur the suspicion of heterodoxy. The reaction is seen in Hilary of Poitiers (350 A.D.), who asserts that, in distinction from God, all created things are material, including the soul of man. His position was maintained by others as late as the end of the fifth century, and its defenders could appeal to the authority of Tertullian. The reply to their arguments is found in Mamertus Claudianus.

At a later period we shall find the Arabian schools producing an Aristotelianism that is deeply affected by Neoplatonic theories. The point at which the required addition to Aristotle is possible comes in the question of the relation between the Passive Reason and that which Aristotle distinguished as Active Reason, and to understand the influences which produce the Arabian versions of Aristotle it is necessary to comprehend the last phase of Neoplatonism presented by Proclus (d. 485 A.D.). Proclus himself was not ignorant of Aristotle. His education began at Alexandria, where he seems to have studied Aristotle's *Logic*, and was continued at Athens under Plutarch, who wrote a commentary on Aristotle's *De Anima*. Marinus, the pupil of Proclus, describes his master as one who realized the ideal of Aristotle.

The Platonic doctrine that the Good is above and beyond Being forms for the Neoplatonist a new starting-point. The " gnosis " of the Gnostics, the Christian Platonists, and the Neoplatonists, is that intellectual condition in which the soul apprehends the reality that transcends scientific knowledge. As distinct from the knowledge which depends upon the experience of the senses, this may be described as Faith or Belief. This development of Platonism, already made by the Christian Platonists, is adopted by Proclus, who puts Belief (πίστις) above knowledge; it is a form of thought which grasps realities that are not the objects of scientific thinking. Thus there are two distinct forms of Belief: that which is inferior to knowledge and that which is superior to it. The higher Belief then necessarily becomes the function of pure thought, a dialectic of Reason which acknowledges no restraints of experience, and which may therefore evolve systems of ideas that are

really refined imaginations. That this was the actual result becomes obvious if we follow Proclus through his doctrine of emanations; but we shall limit ourselves to the points that affect the question of the relation between intellect and that higher realm with which it is connected. For ever since Plato wrote the *Timæus* there had been a growing tendency to change the analogies and metaphors of the master into essential dogmas. Plato had spoken of the nutriment of the soul and pictured it as requiring nothing but truth for its daily food. The fatal step from analogy to dogma was taken by Augustine, among others, when he explained that the soul was immortal just because it had for its vital essence the immortal truths. Imagination and desire were already beginning to work upon the plastic material of Platonism, and theosophic ingenuity continued to explain, by way of mathematics and other forms of immutable truth, how the knowledge of God might be life eternal.

To achieve this ambition nothing is required except the construction of a scale of Being which shall correspond to a subjective scale of values. The lowest degree of Being is the body; above that comes the soul; in the soul the highest part is intellect; intellect constitutes another world, and as it is the highest when viewed from below, it is the lowest when viewed from above; for it is embodied Intelligence, on the borderline of that realm in which Intelligences and Intelligibles are grouped in ascending grades of purity up to the One. We are not surprised to find that this theory deals very extensively in the "infinities"; but the highest powers are self-limiting, and the highest of all, the One, is rightly characterized as finite in so far as it is one and simple and indivisible, though in power it is infinite. Every kind of Being derived from the One is more limited in power than its source, and at the same time less limited in number. Thus the infinite plurality of things produced depends upon the infinite power of production in the One; while at the same time the fact that every effect has less power than its cause supports the view that the individuals lowest in the scale are most inferior in power. The pantheistic strain of Neoplatonism is not maintained in

this doctrine; the One is not in all, but is a First Cause from which all forms of Being proceed and are thereby separated. The ethical development follows naturally; for the inferior strives continually to return to that higher level of power from which it has descended. As this may be actually achieved, the conclusion is a doctrine of re-incarnation; the soul descends into the body and then regains a higher state, only to fall once more into the realm of body. Thus the individuals of our daily experience are eternal and imperishable souls that continually ascend and descend the scale of Being, dwelling for a time among the Gods and then again appearing for a time on the plane of matter.

The relation between Proclus and Plotinus requires to be carefully noted. The effect of Aristotle's teaching is seen in the argument that movement requires three terms: the First Cause as that which is itself unmoved but produces all motion; the intermediary which both moves and is moved; and, thirdly, that which is only subject to motion, the passive and inert substance. The soul belongs to the second type, for it has a principle of self-movement and is thus at once related by likeness to that which is superior to it, while it remains inferior to the First Cause because it is subject to motion. The peculiarity of the soul is its power of self-movement, which means its power of reflection. The self-movement is described as the power of turning back upon the self, and that is a power which belongs only to the incorporeal and is, in fact, nothing more than the idea of self-consciousness or reflection translated into terms of motion in order to give it a cosmic significance. The Aristotelian element in Proclus results in a separation of the One from that which the One produces. God therefore remains transcendent as a remote cause, not being identified with the immanent cause of motion in derivative beings. So in spite of much fanciful elaboration we have little more in this system than a re-statement of Aristotle's teaching. For the soul is primarily a principle of motion, as in Plato and Aristotle; it is constituted by the power of thought and is what it thinks; it is therefore immaterial in the sense that thoughts are

immaterial; its activity proves it to be an independent reality; and, if we add to this the idea of separate existence, it may become a transcendent reality destined to live and move in transcendent regions of Being where there is neither space nor time. A doctrine so elaborate and so bold in its flights of constructive imagination was naturally destined to attract in all ages those who had the temperamental bias toward mysticism and aimed to construct some ontology of the intellect. For all work of that kind Proclus becomes the archetype. The importance of Proclus may be summarized under the following heads: he restated the doctrines of Plotinus in a manner eminently characteristic of his times (411–485 B.C.): he gives the functions of consciousness a peculiar place between matter and the transcendental forms of Being, a doctrine which later becomes a traditional dogma: he attempts to formulate a concept of consciousness, after the manner of Plotinus. Though the modern psychologist finds little occasion to quote Proclus, this last phase of ancient thought has influenced some modern writers. Hegel, as we know from his letters, felt a growing admiration for this writer, though it is doubtful whether that fact will enhance the reputation of either so far as psychology is concerned. It is interesting, however, to ask ourselves whether humanity has quite outgrown the doctrine that the food of the soul is truth. Is there any profound advance in many other forms of this doctrine of "assimilation"? Are we any better off if we can solemnly endorse the statement that the "food of the soul" is phosphorus, or that it lives on "blood"? By touching these extremes thought finds its limits.[1]

§ 2. The Christian literature of the fifth century includes a group of writings that deal with the nature and definition of the soul. Historians of philosophy rightly dismiss these as works of no importance; but while they contribute nothing to our knowledge of the soul, they give an interesting picture of the last phases of ancient doctrine

[1] The materialism of 1860 reached this point: See Vol. iii, p. 79, and p. 173.

and form a link between the old and the new. The most important of the group is the work of Mamertus Claudianus entitled *De Statu Animæ*, that is, *On the Nature of the Soul.* His treatise was the outcome of a theological dispute, and more information is to be acquired from studying the dispute than from the treatise. Claudianus was a Presbyter of Vienne in Gaul, apparently a man of some standing in the Western Church and in many respects a good scholar; considering the time and place of his life we might describe him as a man of great learning. In addition to a knowledge of some classical writers and of the Fathers, he gained a reputation as a poet; he was a close friend of Sidonius Apollinaris, who receives kindly if not honourable mention in histories of Latin literature. We may picture him a gentle monk, of sufficient culture to despise the sloth and ignorance already appearing in secular and clerical circles; a man of some influence, brother to a bishop, shining by comparison and honoured as a quoter of good authorities. So presented he is a type, destined to be reproduced very often in the succeeding centuries. For he is a scholastic before scholasticism; he coins his own terms and speaks of things as existing *animaliter, illocaliter, passibiliter, potentialiter,* and so forth. His distinctions are subtle; they have little use, but they serve to divide opinions, and as they make orthodoxy more precise they multiply the possible kinds of heresy. All of which may be said to indicate the beginning of inferiority.

The dispute which called forth the treatise of Claudianus was caused by an anonymous work, *De Creaturis,* afterwards ascribed to Faustus, Bishop of Regium in Gaul. Faustus maintained that God alone was incorporeal, the soul being material, composed of air. The point was of some interest because the nature of the soul, that is to say its "status" or place in the universe, was not clearly determined at the time. Tertullian had called it material. Origen had regarded it as immaterial in essence, but found that the word "incorporeal" was not scriptural. Philosophically, therefore, the soul is spiritual; but this spirit is for the orthodox corporeal. This position is described in modern works as "double materialism"; for a time it

was accepted and the soul was regarded as a finer kind of matter, a spiritual matter. This was obviously a remnant of Stoicism and only another way of saying that the soul is Pneuma. The teaching of Augustine re-established the view that the soul, not having extension, must be called truly spiritual. Even by Augustine some compromise was allowed; for the air was made a medium by which the soul acts on the grosser matter.[1] It was easy to go back from the position of Augustine, eliminate the intermediary, and declare the soul to be identical with the air. This course was followed by Faustus, but for reasons purely theological. God, he thought, would not create incorporeal beings; in fact, the idea of the creature involves the idea of a limited, spatial, and therefore corporeal being. Hilary of Poitiers had already inclined to the view that the created is necessarily corporeal. Didymus, the last representative of Origen's school at Alexandria, revived the idea that spirits, especially angels, are relatively material—material, that is to say, in comparison with the spirituality of God. In succession to these, and therefore not entirely without authority, Faustus declared the human soul to be "spiritual," and therefore not incorporeal. God alone is incorporeal. He was not devoid of arguments, the chief of which was that thought is not the essence of the soul; the soul may exist without thinking. This argument, as tending to prove that the soul is a substance and not merely a group of functions, might well have been developed to the advantage of Christian teaching. But the trend of thought had in the main been determined by Augustine; and Claudianus fights on the winning side. His reply is little more than a repetition of the main positions of Augustine, especially the Augustinian doctrine of memory and of the soul as not being quantitative. The result is a reassertion of the doctrine that there are two fundamental classes of realities, one having thought for its essence, the other being extended. In his exposition Claudianus makes free use of Aristotle's doctrine of movement and shows a general tendency to use the syllogistic form of argument, another sign of nascent scholasticism. Claudianus uses the

[1] Cp. *H. P.* i. for the views of these writers.

Aristotelian scale of Being as divided into the First Mover, the self-moving, and the moved. This part of his teaching shows affinities with that of Proclus and is one more proof that Neoplatonism was becoming less and less distinguishable from the spiritualistic Christian theories. We are told that the eye of the mind sees the abstract qualities of things; our mind is illuminated by that "light that lighteth every man that cometh into the world," and that is interpreted to mean, practically, that the work of pure reason is to contemplate the ideas in the mind of God. In the limitation of discussion to supernaturalism and the appeal to purely logical arguments we see the evidence of monastic seclusion. There is no attempt to grapple with the problems of sensation, only the most formal repetition of Aristotle's doctrine of nutrition and sensation and a perfectly dogmatic retention of the vital functions of the soul. It is difficult to see how such an abstract spiritualism as this could be squared with the functions of digestion or local motion; yet the author has no intention of diverging from the paths of his predecessors, for whom the soul had been primarily the vital principle.

The work of Claudianus was known to Cassiodorus. Magnus Aurelius Cassiodorus was born about 477 A.D., the year in which Claudianus died. He was a senator, a man of affairs, private secretary to Theoderic, until in 540 he became a monk. He appears to have retained his energy and organizing power in his old age, and exerted a lasting influence on the monastic system of education. Among the monks of his day he alone seems to have understood the value of medicine and to have advocated attention to this branch of worldly wisdom. He died in 562 A.D., and among his writings is a work *De Anima* which restates the doctrine of Claudianus. The main point, the spirituality of the soul, is common to both writers, and the second adds nothing of importance. Some have been able to see in Claudianus a predecessor of Malebranche and of Descartes. The resemblance, in so far as it exists, concerns only those points which had been more fully expounded by Augustine. There is no comparison between the work of Claudianus as a whole and these later writers. The most

ardent admirer of Claudianus could not see in him more than a spirited partisan, an uncritical eclectic, and a limited encyclopædist.

§ 3. In passing from the West to the East it is necessary to point out that the change is a change of locality rather than of thought. The West, as understood by the historian of Christianity, includes Alexandria and parts of Asia Minor. Palestine, Egypt, Syria and the east part of Asia Minor are the regions called distinctively "Eastern." Even then the dividing line is not easily drawn, and we find some ideas, for example those of Nestorius, which take their rise in the West but pass over to become the property of the East. Yet a peculiar interest belongs to the East, because through the Eastern Church we shall come later to the religion of Islam and so pass to the study of the Arabic philosophy. In order to keep this in its historical position, some account will be given of the Eastern Church and its development.

A Christian Church was founded at Antioch in the first expansion of Christian teaching, but the community was wholly Greek and kept in close touch with the West. The first community which was not Greek seems to have been at Edessa, the capital of a small kingdom east of the Euphrates. This was at the time outside the Roman Empire, and was not a Roman possession until 216 A.D. The Greeks called the town Edessa, the Aramaic population called it Urhai, and the Greeks used that name in the form Osrhoene for the district. The Church in Edessa seems at first to have used Tatian's *Diatessaron* and not to have known the separate Gospels; at a later date it was in possession of the Old and New Testaments in Syriac. The best-known members of the community were Ephrem Syrus and the Gnostic Bardaisan, but the only point of interest in these writers is the extent to which they seem innocent of the subtleties that gave so much trouble in the Churches influenced by Greek metaphysics. A natural tendency to mysticism and a strict enforcement of celibacy as a qualification for the higher life are the two leading features of the thoughts expressed in this community.

The Eastern Church produced a line of thinkers consistently inclined towards a refined spiritism. From Cappadocia came the doctrine of Gregory of Nyssa, and Gregory of Nazianzus, and Basil of Cæsarea. Cappadocia borders upon Syria, and the traveller going southward through Syria would make his way through a narrow strip of Roman territory down to the delta of the Nile and, westward, to Alexandria. Such a journey would lead through districts containing the cities of Antioch, Apamea, Larissa, Laodicea, and, if the coast route was followed, Tyre and Cæsarea (in Palestine). If a detour was made eastward, Damascus would be reached. At the southern extremity, before entering Egypt, Judæa would be traversed, Jerusalem lying to the east and Gaza to the west near the coast. To the north the Roman territory lay like an arch over Arabia and ended on the borders of Persia: to the south it was bounded by Arabia Felix. A brief study of the map indicates some important points. First is the fact that the area of Eastern Christianity is so placed as to be naturally traversed by anyone going from Alexandria by land into Asia Minor. Secondly, that any oppression by Roman rulers could be most easily avoided by escaping over the borders into the unconquered territory of Arabia. The latter fact will be important when we come to consider the spread of Judaism and Christianity in Arabia. For the present our narrative is limited to the cities of the Empire.

To Emesa belonged Nemesius, the author of an eclectic treatise on psychology.[1] When Nemesius touches upon the speculative question of the soul's origin he inclines to accept Origen's doctrine of pre-existence. This had already become heretical doctrine in the West, and belonged to a period of free logical thinking which was rapidly passing away. After Nemesius we come to Æneas of Gaza, in whom the decline both of original thought and of learning is already obvious.

During the sixth century the Christian writers include John of Alexandria, who took the title Philoponus, and the pseudo-Dionysius.

[1] See *H. P.* i. p. 327.

John Philoponus was an Alexandrian and a disciple of the Alexandrian teacher Ammonius Hermea, who appears to have been an adherent of Neoplatonism in its last forms; in other words, a teacher of Platonism and Aristotelianism uncritically mixed. John emphasizes the Aristotelian elements and opposes the Platonism of his contemporaries; but he does not adhere to the Aristotelian doctrines as a whole. The soul, he maintains, is not form but substance; it is also immortal, though Alexander of Aphrodisias interpreted Aristotle differently; lastly, the groups of functions which were called by Aristotle the nutritive, sensitive and rational souls are here declared to be distinct souls. Man's soul is therefore really three souls, united only by sympathy and a union of co-operation.[1] The further developments of this view are not shirked; all three souls are equally immortal. The irrational souls continue their existence after the dissolution of the body because they are united with a finer kind of matter which serves as a new body. The rational soul is not allied directly to matter; it is not in the same way inherent in a material substance; hence it becomes entirely free from its body at death and a new body is created for it in the resurrection. These disconnected ideas are only of value as showing the progressive decline of thought.

The object of the works so long ascribed to Dionysius the Areopagite is clearly an attempt to fuse Christianity and Neoplatonism. These writings cannot any longer be ascribed to the first century or to the Areopagite whom St. Paul knew; they may belong to some writer nearer to Plotinus than to Proclus; but the dispute as to their date has led to the general belief that they belong to a period later than Proclus. The author is in full agreement with the chief Neoplatonic doctrine, that true knowledge is knowledge of God, attainable only in a form of ecstasy. Nothing is here added to the doctrine of Plotinus except what is required to give this mystical groundwork a form acceptable to Christians. The world is an ordered system, a scale of Being, descending from God. God is above thought and therefore only to be comprehended in a

[1] A view revived by Biran; see H. P. iii. 22.

state that transcends thought. To the pseudo-Dionysius the world owes the distinction of superhuman beings into three classes; first, thrones, cherubim, seraphim; second, dominions, virtues, powers; third, principalities, archangels, and angels. The names are drawn from the Old and New Testaments, but the basis of the system is the idea of emanations, though the Christian influence appears in the statement that these beings have been created by God. The earthly hierarchy includes men, animals, plants and inorganic structures. Man has a spiritual element, the reason, and by virtue of that can strive to become like the angels and receive the direct illumination which God gives to spiritual essences. The systematic character of this mysticism made it influential in later ages, and it becomes a standard text whenever a similar tendency appears in the history of human aspirations. The pseudo-Dionysius found an ardent disciple in Maximus the Confessor. In this man the tendency toward a purely religious valuation of life reaches its conclusion. As in his life he turned from the world to the cloister, so in his writing he allows no ultimate value to anything but the inner quality of love and the peaceful contemplation of God. The theories of the Eastern Church took their rise chiefly from Origen, developed gradually the purely speculative elements of the Alexandrian teaching, and finally evaporated in the mists of the imagination. In the course of this development many ideas had been transmitted to other nations, and the speculations that died away in the Churches of Syria came to life again in the Empire of the Arabs.

CHAPTER IV

THE ARABIAN TEACHERS

§ 1. THE history of scientific thought during the Arab supremacy is mainly a record of transmission. Europe owes to the Arabs a debt of gratitude for the preservation of ancient documents; but there is little or no ground for any further enthusiasm. The reason for this will be made obvious as we proceed. First let us follow the path of our traditions from the near East to the further East.

The situation of Syria has already been noticed. Christianity took root in Syria at an early date; the doctrines were not very rigidly orthodox, but the general outline of Christian speculation may be determined as Monophysite and Nestorian. Judaism, the opponent of Christianity, had its stronghold upon the north-west of Arabia Felix, and from time to time emigrant Jews settled in Arabian territory. To the east lay Persia, and beyond Persia lay India, so that Arabia was, geographically, the meeting-point of the Byzantine Empire and the unconquered East. A careful study of the history of thought makes clear the fact that the seventh century is an epoch of prime importance. In the third century before Christ the Hellenistic world came to life through the conquests of Alexander. Much has been written about Alexandria and the fusion of East and West, of Greek and Jew, which took place there. The next great crisis in history is the awakening of Arabia, and in many respects this is a greater crisis than that of the third century B.C. When Greek and Jew met at Alexandria the result was inevitable: Greek thought was destined to gain little and lose much. When Arabia was filled with a new life there was a far more complex mass of material to be quickened; the Arab moved on

from conquest to conquest and stretched his empire from India to Spain; he could command Greek, Hebrew and Christian forces to aid his progress; he could boast a freedom unknown since the last days of Athens. Everything conspires to mark this epoch as the next great crisis in the history of Western culture after Alexander's conquests, an age more truly cosmopolitan than that of the Stoic or of early Christianity. Nothing seems to have been lacking except originality; every art and science was cultivated and disseminated; almost nothing was created.

The history of the Arab traditions falls into three well-defined periods. The first is the long period of stagnation when the Arab "as nearly as possible stood still," and nothing is found beyond the rudimentary beliefs that were common to Semitic peoples. Demonology flourished extravagantly; the fabled lore of jinns was inexhaustible and became the endless source of myth and romance in the West; but there was no systematic thought or fixed doctrine. The second period opens in the seventh century with Mohammed and the establishment of monotheism, a period in which the energy of the nation is absorbed in conquest and expansion. The third period, the age of the Abbasid Caliphs in the eighth century, is the beginning of Arabic science and learning.

The earliest literature of the Arabs was poetry. When the language began to be written the Syriac characters were used. The Jews domiciled in Arabia used the Arabic language; the Christians on the Persian side at Hira also used it; the ruling houses of Ghassan, Damascus and Hira were Christians in the sixth century. In addition to Jews and Christians there were two sects, the followers of John the Baptist and the monotheistic sect of the Hanifs. From this last sect came Mohammed, and the time was ripe for a union of the various sects in a new and comprehensive faith. The religion of Islam answered the needs of this complex population; it produced a political union on a religious basis, for the most part tolerant of many forms of thought and belief. The progress of the Moslems during the first period of conquest is marked by the successive conquests of Persia, northern India, Syria, Egypt, Africa

and Spain. All this was achieved under the Omayyad dynasty in the brief space of one hundred years. In the beginning of the eighth century the Omayyads were overthrown and the followers of Abbas, supported by the Persians, founded a new dynasty. But no change was produced beyond the sphere of politics; the Persians had already thoroughly assimilated the general modes of thought and speech common among their Arab conquerors. In Spain the Omayyads succeeded in retaining their power; but even this division of government did not affect the universal character of the Arab thought and culture. In the following pages we shall trace, in brief outline, the course of philosophical thought in the Arab dominions; enough has been said to explain the extraordinary complexity of that thought, and the indications that will be given of the origins of the learned men will further exhibit the various sources and channels of the ideas.

As we have already remarked, the history of Arabian philosophy is mainly a record of translations and comments. This judgment, commonly passed on the philosophy as a whole, applies with still greater force to such topics as may be called psychological. The diversity of opinions and the dialectical disputes which belong more properly to the sphere of theology must be excluded from our narrative. On the other hand, there is no clear line of demarcation between the psychosophy which is allied to theology and those views of the soul which are more definitely scientific. We shall be compelled, under these circumstances, to keep in view the speculations which seemed to our Arab writers an essential part of the theory of the soul. In the union of psychosophy and psychology it is easy to see that most salient feature of Arabic traditions, the union of Neoplatonic and Peripatetic views. Plato and Aristotle are believed to be fundamentally identical; a view by no means so unjustified as some writers declare it, but not elaborated or defended by Arabs with much insight. The ideas attributed to Aristotle were often late additions to the Peripatetic doctrine: a strong infusion of Neoplatonism corrupted even the doctrines that were declared most distinctively Aristotelian. Yet in the main the part

played by the Peripatetic and the Neoplatonic doctrines can be distinguished. The nature of man includes a natural and a supernatural part. For the natural part Aristotle is usually accepted, and the analysis repeats the familiar doctrine of his treatise *On the Soul*. For the supernatural part some version of Neoplatonism is the invariable basis. The Arabs, for the most part, show a keen interest in the metaphysics of the soul: their work tends to expend itself on the nature of the superhuman powers or intelligences, and bears a strong resemblance to the speculative thought of the last Greek and Christian schools. In this connection the Neoplatonic views of the One and of Reason served as a basis upon which the imagination could construct schemes of emanation. Aristotle's remarks about the "active intellect" were so indefinite that it was possible to mount up through the teaching of the *De Anima* to a cloudy pinnacle of Neoplatonism. Thus we find a continual repetition of three groups of ideas. At the lowest level stands the life of the body and the senses, for which Aristotle, Galen, or some version of Aristotle, is the authoritative doctrine. Next comes the life of thought and the inner activities, for which also Aristotle is the main authority. Last comes the highest level of intuition or ecstasy, mainly Neoplatonic and closely connected with the general doctrines of the universe, the celestial spheres and the supreme Unity.

The Arab mind seems to have followed, by natural inclination, the ancient idea that man stands midway between a lower and a higher realm. The relation of the human soul to the lower realm is never seriously investigated: if it had been, we might have heard more of the animal nature of man and found in these writers a more valuable science of man. It is the higher realm that attracts their attention and so leads them to subordinate their psychology to their psychosophy. This fact would be evident from our narrative if we intended to describe the whole teaching of the Arab writers: it requires emphasis here because we have to select from the mass of material only those points that are of interest for the development of psychology. The time has now passed for dealing

extensively with the mystical or theosophical speculations; what is worth saying on these subjects has been said in connection with Plotinus and his successors;[1] for the future they will gradually cease to engage our attention. Yet before we leave that topic it may be as well to state how this side of the subject should be valued. The Neoplatonic line of thought is significant because it represents the idea of experience. In the Arab as in the Christian doctrines of the soul there is a painful lack of experiment; empirical tendencies only emerge occasionally and remain undeveloped; this was the weak point in the natural sciences, and psychology as a natural science was, in this respect, no exception. But experience shares with experiment the claim to be a source of knowledge about man, and the Neoplatonic line of thought cannot be dismissed altogether so long as it continues to represent that reflective study of the inner life from which new ideas might at any time be derived.

§ 2. The two subjects which especially concern us are medicine and psychology, the former being more distinctively a science, the latter more closely linked with religion. During the eighth and ninth centuries, through the activities of translators, the Arabs gradually acquired a large amount of material from which they built compilations and commentaries. Without entering into details, we may sum up the progress made before 900 A.D. by saying that the Arabs then possessed considerable portions of the writings ascribed to Hippocrates, Galen, Plato, Aristotle, and some other authors, such as Dioscorides, Porphyry, Ammonius, with the commentaries of Themistius and Alexander Aphrodisias. The great physician Razi (d. *circa* 930 A.D.) is said to have written an almost incredible number of works, ranging from treatises on medicine and physiology to tracts on the soul and the resurrection of the dead. Razi was called the Galen of his day, but in fact the erudition and versatility of this Arab must have surpassed all previous records: his attainments show how rapidly,

[1] See *H. P.* i. p. 297, and above, pp. 18–25.

if superficially, the whole learning of Greece and Rome was acquired by the Arabs.

The first name in the annals of Arabian philosophy is that of Abu Jaqub ibn Ishaq Al-Kindi, usually called Alkindi, one of the many who resorted to the University founded by Harun (786–809 A.D.) at Baghdad. He was reported to be a man of great learning, but so far as we know his genius was not in any way creative. Though he is described as an Aristotelian, his mode of thought is Neoplatonic, with some mixture of ideas derived from other sources. The human soul is regarded as an emanation from the soul of the world, united during life to a body, but in its essence independent of the body. It is a substance, uncompounded and immortal, which has descended into the world of the senses and retains the memory of its earlier state. In accordance with this view of its origin, the soul is regarded as acquiring knowledge either by the senses or by the reason: the senses apprehend the material forms, and the reason grasps the spiritual forms or the universals. The only work of Alkindi which is known is a brief work *On Intelligence*. This contains a doctrine of the degrees or kinds of Intelligence which reappears, with variations, in many subsequent Arab writers. There are four degrees in all, one external to the soul and three contained in it. The external Intelligence or Reason is an eternal cosmic essence or spirit. In the soul there is, first, that intellect which is called a potentiality, a latent power of understanding. Through the action of the external spirit this is raised to the higher degree of Habit, that is to say, an actual power of understanding (*intellectus in actu*). At this stage the individual is in possession of ideas, which he may, by his own activity, bring to a higher degree of perfection. This third and final stage is a full realization of intellectual principles and a power to use them.

The doctrine of the intellect, though difficult to comprehend, was so continually dwelt upon by the Arabs that it is necessary to understand at once what problem it was intended to solve. Ignoring the experimental side of the question, the Arabs plunged into speculations on the origin

of human reason. Wisdom, to the Eastern mind, is always from above: knowledge may in some degree be the result of man's activity, but even so it requires a cause which is not itself. So the Arabs set themselves to explain how the intellect grows and becomes an independent reality in man. When the problem was formulated it proved to be by no means new. Plato was thought to have explained the universal factors in man's reason by reference to external causes, the world of Ideas: Aristotle had said that the Reason (Intelligence, *nous*) comes from without; the Gnostics had developed a more imposing theory, with a doctrine of intermediation calculated to satisfy the most scrupulous; in fact, all through the history of ancient Greek literature the "masters" could be quoted to support the view that the intellect is not merely a function of the natural body. The views of Alkindi came probably from Alexander of Aphrodisias; but the Arab has his own reasons for his choice, and those reasons are emotional. As the race seems to be something eternal into which the individual enters at one particular point, so knowledge seemed to the Arab to be an eternal and abiding reality, everlasting and indivisible, which for a time reproduced itself in the individual.[1] There were, of course, degrees of realization; the fool and the wise man differed in the degrees of their intellectual illumination; and above the wise man stood the prophets, men whose intuitions surpassed both sense and reason, for in them the creative reason itself lived and moved.

This doctrine of the intellect has detained us a while because of its significance. The details can hardly be of interest any longer, but it is not difficult to see that, in spite of extravagances and a fatal loquacity, the Arab knew that the problem of consciousness was not to be solved by anatomy. If his metaphysical genesis of the intellect wearies our minds, let it be remembered that he does not weary us with fruitless discussions about the "seat of the soul." If we feel that his descriptions are the baseless

[1] Philoponus is said to have introduced "a realistic element by speaking of mankind as a collective thinker who is always thinking" (Bussell, *Religious Thought and Heresy in the Middle Ages*).

fabric of imagination, let us remember that we know little of his thought, that he belonged to a people adapted by nature to subtle analysis and deep meditation; and that, in the absence of any scientific proof that body produces soul, he was justified in maintaining his belief that it does no such thing.

After Alkindi we come to Al-Farabi, a man of Turkish origin who knew no Arabic until he migrated to Baghdad, where he died in 950 A.D. The student of philosophy in general may find in Al-Farabi traces of a metaphysic that has some meaning, but the science of human nature is not forwarded. The theme, as before, is the intellect; *intellectus* is wholly distinct from *anima*; the soul or *anima* has two classes of powers, those which imply an organism and those which do not; the organic powers are the vegetative, sensitive and motor, while the theoretical and the practical intellect are powers of the soul for which there are no specific organs. Both these intellects belong to the *anima* and are therefore merely activities of the human soul, not species of pure or separate intellect. There is a pure divine intellect which is wholly superhuman, and this is the light that lightens our understanding, the power that quickens the latent powers of our soul. In all this it is clear that we have nothing but another version of the usual Neoplatonic theme; there is no reason to linger over it. In one point Al-Farabi deserved further notice. He maintained that in all the faculties there is some element of effort; the intellect, will and desire are therefore regarded by him as always implicated one in another: thought is a kind of striving upwards, theory is incipient practice, perception is always accompanied by liking or disliking. We should be glad to hear more about this development of Aristotle's ideas; the notion of a conational psychology appears here with an alluring promise of freshness; but it seems to have been a stray gleam, a flower of rhetoric that had no depth of intellect for its nourishment.

To the literature of this period belongs the *Encyclopædia of the Brethren of Purity*, a collection of treatises designed as courses of instruction for the different groups

of that community. This plays an important part in the culture of the age, but its collection of statements about man and the soul is an eclectic mixture with no independent value. The principal topics are more adequately treated in the other writings hereafter to be discussed, while the general scheme is mainly the Neoplatonic emanation theory combined with a Pythagorean number theory.

§ 3. The last of the great names in the Eastern school of philosophy is that of Abu Ali Al-Hosain ibn Abdallah ibn Sina, the Avicenna of the Western mediævalists, a native of Bokhara, who lived 980–1037 A.D. Ibn Sina was an authority on medicine. His extensive, if not accurate, knowledge of Aristotle and of Galen accounts for his interest in the so-called lower faculties and for the care with which he reproduces what was regarded as the authoritative doctrine of the functions of the soul. His works form an encyclopædia of what was then known about man; for in the *Canon* we learn all that was known at that time about the human body and the organs of sense; in the commentary on Aristotle's *De Anima* we have a definite statement of all the powers and faculties, from the senses to the pure intellect; and to this we may add, as a significant appendix, the poetical fragments which show that our author did not lack the hereditary mysticism of the Arab nature. Here, then, we have sufficient material for a systematic account of the whole subject.

Matter is for Ibn Sina eternal and uncreated, not (as in Al-Farabi) an emanation from the first and cosmic Unity. The whole sum of existent reality is either material or spiritual; the former is the subject of physics and the latter of metaphysics. The soul comes midway between the corporeal and the spiritual worlds; its genesis is explained by the traditional doctrine of emanation, elaborately worked out on a plan derived from the Ptolemaic astronomy. Starting, as usual, from the First One, Ibn Sina describes the procession of the Spirits, namely the World-Spirit, the Spirits of the Planets, and finally the Active Intellect, the point at which Ibn Sina chooses to stop. As matter is not an emanation, this metaphysical doctrine only becomes

interesting when we have to consider the relation of the soul to the active intellect. Before discussing that point we may start from the opposite end and reproduce Ibn Sina's account of the ascending scale of powers.

Ibn Sina begins with a proof that there are such things as powers of the soul; in other words, he undertakes to prove that there is a definite subject-matter for psychology. This proof, taken from Aristotle, consists in pointing out that voluntary movement and perception are not functions of matter; they can only be treated as the obvious manifestations of a spiritual reality. Granted that the soul is not to be reduced to matter and motion, psychology has for its sphere the classification and analysis of the soul's powers. From this point Ibn Sina proceeds to give an account of the soul which is essentially that of Aristotle. The powers are divided into three groups: the vegetative, animal and rational. The vegetative powers are subdivided into three groups called generative, augmentative and nutritive, according as they subserve the production, the growth and the maintenance of the individual. This (Aristotelian) doctrine is an elaborate analysis of the purely physical side of life, combined with the assumption (after Al-Farabi) that the vital processes are not functions of matter, but of soul as united with matter. This is the way in which the Arabs state what is, in principle, a form of vitalism.

The animal soul, *anima sensibilis* or *vitalis*, comprises two classes of powers, the motive and the sensitive. These are elaborately subdivided. The motive powers are those which (*a*) command movement, the *vis appetitiva* or impulse including desire and aversion, or those which (*b*) execute movement. A distinction is made between the faculty of desire and the faculty of aversion, the former being the *vis concupiscibilis*, the latter the *vis irascibilis*. The former of these is described as an expansive power, the latter as contracting, the distinction being apparently transferred from the sphere of physiology to that of psychology, probably under direct influence from the Stoic tradition. Something might be said in favour of a true psychological distinction between the desire to possess and the purpose

of overcoming, a point developed from this terminology by later writers. Passing on to the cognitive powers, we find the power of apprehension is divided into the outer and inner senses. The outer senses are the usual five, also counted as eight, not in the Stoic fashion, but by including under touch four distinct species of discrimination, namely for hot and cold, for dry and wet, for hard and soft, for rough and smooth. This distinction obviously goes back to the doctrine of the four elementary qualities and does not really amount to a recognition of difference between a sense of touch and a temperature sense, though the suggestion of such a distinction is implied in the language. In dealing with the separate senses Ibn Sina follows Aristotle, with such additions as were due to the later medical writers. In particular the problems of vision are discussed at length and with some advance on earlier statements. Ibn Sina was one of the first, if not actually the first, to state that the crystalline lens is not the seat of the visual image but only presents an image visible to an observer: the optic nerve was according to Ibn Sina the organ of vision, for he does not arrive at any statement about the retina.

Ibn Sina deals at length with the inner senses. Under this head come the powers called common sense, *vis formans* or *formativa*, *vis cogitativa*, *vis æstimativa* and *memoria*.

The common sense, which receives and unites all the separate sense impressions, is only formally distinct from the second power, the *vis formans*, or power of retaining the sensible forms. When, for example, we apprehend the movement of a body in space, the external sense gives us a number of sensations; to obtain a notion of this as a whole, or to sum the series of sensations, we require a power which is distinct from that of immediate apprehension, for the result is a compound of present and past data. The characteristic of the *vis formativa*, then, is that it conserves the image; it is a primary retention, akin to memory; it may also be called *phantasia* (imagination), since in it the merely sensible is converted into the imaginable, i.e. into a form that can be re-presented after the presentation is over and ended. The name, *vis formativa*, is intended to mark this essential change of character by

which the sensation, a physical event, becomes a treasured form, a psychic possession.

The third inner sense is the *vis cogitativa* (also *imaginativa* or *collectiva*), which is not a power of the intellect but only a power of the *animal* soul (*anima* as distinct from *intellectus*). Such processes as abstraction or association belong to this "inner sense."

The fourth is the *vis existimativa* or *æstimativa*, a kind of opinion or judgment which is produced by the *anima* and is more akin to a feeling about things than to an intellectual grasp of them. This is equivalent to what we call instinct in animals; in man it is a "prejudice" or opinion. The example given is that of a man who, seeing a child, *feels* that he ought to treat it gently; so that this power is a kind of judgment in which the grounds of the judgment or the reasons for it are not consciously elaborated by any intellectual process.

Fifth and last is the memory, the full power of preserving the forms which are acquired in experience.

The powers here described are classed as "animal powers," that is to say, they are attributes of the organism composed of body and soul. As they are organic powers they have definite relations to the extended organism, in the sense that the power of sight has a definite relation to one part of the organism, the eye. Though these inner powers have no scientific organs they have specific localities. The outer sense organs are in fact no more than localizations of powers, and there seems to be no reason why one should not localize the inner functions. The brain is the organ for all of them, and the divisions of the brain are specialized areas. So the powers are localized thus: the *vis formativa* has its seat in the anterior cavity; the middle cavity is occupied by the *vis cogitativa* in the fore part and the *existimativa* in the hinder part; the posterior cavity is the seat of memory. This was an old doctrine, but it took a new lease of life from Ibn Sina.

As we noted above, Matter is for Ibn Sina an independent reality. The body, as a material thing, is produced by a mingling of the elements, and each element has its own form; so that the form of the body is a product of the

other forms, which are merged in its being. But this form is not the soul. Whatever Aristotle may have meant, Ibn Sina declines to accept the doctrine that the soul is the form of the body; on the contrary, it is a separate independent reality, which is only united to the body accidentally, that is to say, without any relation which affects its essence. All those powers which we have described, both vegetative and animal, are made possible by the union of the soul with the body: but if we go beyond these we come to other activities which belong to the soul itself. These are described in the doctrine of the Intellect, which comprises (*a*) the *intellectus activus*[1] or practical reason of Aristotle, and (*b*) the *intellectus contemplativus*. The former is not treated with any originality: the latter is described genetically and analytically in what may be regarded as the classic statement of the Arab teaching. By analogy with the general view of the cosmos we get the idea of a pure potentiality, a blank state of being,[2] which precedes all production or activity: opposite to this at the other end of the series of states is the pure actuality, the separated Form or *intellectus agens*. The continual operation of pure Form on the material or potential reason of the individual produces an ascending scale of perfections: the pure potentiality becomes endowed with the primary truths and then becomes *intellectus possibilis*, or nascent intelligence: advancing to further knowledge, the *intellectus* is said to be *in actu*: next it becomes a complete and independent system of thoughts or fully developed intellect (*adeptus acquisitus*): finally a higher stage may be reached by a few, which is the intuitive knowledge of the most supreme intellects, the prophets and the "holy spirits."

A little light on the real significance of this description may be obtained by considering the simple example given of the development indicated. A child may be regarded at first as capable of writing, though unable to write: after instruction he will be able to write in the sense of copy-writing; finally he will be able to write from the inner

[1] In scholastic terminology *operativus*.
[2] The *tabula rasa* of Alexander (p. 29 above).

prompting of his own mind. The basis of Ibn Sina's distinction is a passage in Aristotle,[1] but the expansion shows an interest in the fact of development. For the rest, the doctrine of the intellect is Arabian Neoplatonism and has no interest in connection with psychology, though hitherto hardly enough attention has been paid to the subtle changes which the Arabian versions of Greek writers introduced into the later scholasticism and then into Cartesianism. It is of interest from this point of view to notice how in Ibn Sina the germs of sensationalism and of occasionalism are equally preserved. Nothing is required beyond exclusion of the *intellectus agens* to leave a sound doctrine of the senses and the intellect: nothing more is needed than the conversion of the *intellectus agens* into an ever-acting God, a subtle turn of the phrase "Deus Illuminatio mea," and occasionalism emerges.

§ 4. The labours of Ibn Sina in compilation and speculation were followed by a relapse into inactivity. There are no more great systems to be studied, but there remains one name of real importance, the astronomer and optician Alhazen. Those who have studied and described the works of this isolated genius have unanimously agreed to rank him (by analogy) with Helmholtz. There is little or no relation between the ideas or the methods of Alhazen and those of Helmholtz, though some curious anticipations of later views have been found in the Arab's theories. The analogy is most striking when applied to the two writers as phases in the history of thought. In the earlier period we have the Neoplatonic background, and sharply defined against it the man of practical schemes and acute observations, who is, however, no mere empiric. In the later period the modern Neoplatonism of the Hegelians floats cloudlike behind the figure of the scientist who combined with the most rigorous investigations of natural processes no slight inclination to see in his work a significance that must ultimately transcend the sciences.

Alhazen, whose full name was Al-Hasan ben Al-Hosain ben Al-Haitam, was born at Basra in 965 A.D. The first

[1] *Ethics*, ii. 4.

stage of the process which transferred to the Arabs so much of the Greek literature was then ended: a more independent development succeeded it, and brought an extension of interest into the mathematical and physical sciences. Alhazen had an inclination for the sciences which seems to have been "debauched with philosophy." He maintained in theory that the flooding of the Nile could be regulated, was deported to achieve it, realized his own incapacity, and lived in concealment from the wrath of the Khalif Al-Hakim until 1021. This enforced retirement was occupied by copying and writing books, more than one hundred treatises on mathematics and astronomy being ascribed to Alhazen. Among these there is no work on psychology, and the Arab would hardly have considered his ideas as a contribution to that subject, but he is in fact a link in the chain which runs from Aristotle and Ptolemy through Witelo and Roger Bacon (p. 135) down to Helmholtz and his successors. As such a link history is honoured in remembering him.

The only work of Alhazen which concerns us is the one entitled *Al Manazir*, in the Latin version *De Aspectibus*, which became known as the *Perspectiva* or *Optica*. This was a work on the physical doctrine of light which continued the works of Ptolemy and Damianus. Omitting those details which concern only the history of physical optics, we may remark that Alhazen starts with the general principle that the eye receives light from objects, the older doctrine that the eye sends out rays having been already destroyed by Ptolemy's school (*c.* 150 A.D.). In common with other thinkers of this age, Alhazen accepts without criticism Galen's description of the eye. This was in many respects defective, but Alhazen is only concerned with the organ of vision as a system of lenses and with the consequent problems of refraction. With this scientific interest is united the general Neoplatonic tendency to regard light as something unique; from Proclus onward there was a continuous tradition about the nature of light which made it the basis of intellectual as well as sensitive knowledge. It was therefore no personal idiosyncrasy that led Alhazen from the physical treatment of light to the problems of

perception: they were not for him two wholly distinct subjects, but rather one group of subjects whose natural connection was found in what we might call the psycho-physical character of the eye. With this explanation of what might otherwise appear to be a miraculous birth of psychophysics we may proceed to summarize the views of Alhazen on perception by the eye.

It is necessary to recall the general conditions of vision as they are stated in the works which depend upon Galen's teaching. According to this the optic " nerve " is a channel through which the particular spirits (*spiritus visibilis*) run from the brain to the eye and back again. The images or forms (visible species) which produce vision are conceived as propagated from the object to the eye, taken up in the stream of spirits, and so conveyed inward to the cerebral place of forms (Aristotle) and true centre of vision. This doctrine was open to misconception and usually became unintelligible through the influence of atomistic (Lucretian) views, which made the " forms " into material things. The genuine doctrine was not this materialism but a more strictly Aristotelian tradition, which was concerned only with the functions of the eye and its " pneuma." Alhazen is quite unintelligible unless we remember that he keeps closely in touch with this Aristotelian line of thought, assisted as it was by the Neoplatonic assertion of the immaterial character of consciousness and the importance of psychic activity. Alhazen, setting himself to extend the description of the eye into a description of its functions, thinks of the visible world not as an infinite mass of material objects, but as a system of activities, and so proceeds to an analysis of visual experiences, with very surprising results.

The method and the genesis of the method as here stated are as interesting as any part of Alhazen's work; the emergence of new varieties of thought by what appears to be almost accidental cross-fertilization of old traditions is here shown in a striking way. In every part of Alhazen's work it is possible to see two persistent factors, the practical scientific investigation of data and the theoretical schematism of the Neoplatonic world-system. The sphere of vision offered many problems, and Alhazen took the question of

sight as comprising both the outer seeing of the eye and the inner seeing that is of the mind. Compared with the atomists Alhazen is a mystic; compared with the mystics he is a man of science. In a true Neoplatonic manner the Arab sets himself to explain how vision comprehends the invisible. For if a man sees two things and their relations one to another, he cannot do this with the same kind of vision; there is a sight that belongs to the senses and another seeing that is not of the senses. This is the mystery which Alhazen explains.

We must begin with the physiological aspect. Alhazen seems to have been of the opinion that the "spirits" concerned in vision were the agents producing sensation. Each eye can have its own sensations of the amount and direction of light, but the cognitive part of visual experience is the work of the spirits lying behind the eyes in the channels where the nerves cross—the chiasma. These more remote spirits (which afterwards were located in the fore part of the brain and so come to be the equivalent of the later cerebral centres) have the power which we might expect to find at such a point of union—the power of judgment or comparison. Any given perception comprises (*a*) the sensations of the eyes, and (*b*) the activities added to them by the "inner sense"; it is therefore analysable into given elements and associated elements. Taking first the process of seeing an object, we find that this is either a point to point relation of the eye and the object or it is a visual perception of an object as a whole. The perception of the whole is achieved by movements, the eye thus exploring the object. Here we have explicit recognition of the difference between visual points and the whole field of vision, the latter being constructed by the series of movements which gives the different elements synthesized in the perception of the whole. Such a process involves the power of memory and (in some sense) the reason. This is not the higher deductive reason, but a lower activity which the Scholastics call *cogitatio* and the Latin versions of Alhazen refer to as contributory reason (*ratio conferens*). The exact nature of this operation is more obvious when we consider other points now to be named.

Aristotle had remarked that in perception some elements may be "accidental," that is to say, supplied from another source. We say that we "see" a friend, when really we see a coloured object and recognize it as our friend. Alhazen elaborated this analysis of perception. In perception there is an element of comparison, either of coexisting sensations when we perceive the relations of data given together (e.g. size) or of present and past sensations. Recognition is only another phase of the same kind of activity, and immediate recognition is an unconscious comparison. The doctrine of unconscious *inference* is largely used by Alhazen in the explanation of all the more complex kinds of perception. Following out Aristotle's dictum that we do not perceive a thing as "this" but rather as "such," Alhazen traces out the influence of accumulated experience on perception. If a person perceives an animal of a familiar type, that is to say, an animal of which he possesses already the "species" or generic concept, he does not explicitly perceive all its parts: he sees enough to justify a kind of unconscious identification of the object with the form or *schema* already existing in the inner spirits. Any doubts as to the real meaning of Alhazen are removed by the statements which he makes as to the time taken by perceptions. He noted that the process takes time, and that this time is reduced when the individual is familiar with or expects to see a certain kind of object: for then the "species" is ready to hand.

Time and space are two subjects in which our mathematician took a special interest. As regards the origin of perceptual space, he seems to have no idea of the problems and is contented to regard it as a natural possession of man, as in what is later called the nativistic doctrine. Size, magnitude and position Alhazen regards as objects of judgment, though usually the judgment is made so rapidly that we are not conscious of the act. That the apparent perception is actually a judgment was shown by reference to illusions; we seem to see the moon moving when in reality the clouds move across it. The time-element required for judgments explains the apparent mixture of colours when a rotating circle of different colours ceases to

be perceptible as such and becomes a blurred (mixed) colour. It has also been asserted that Alhazen understood the facts which are formulated in Weber's law, for he said that all sensation was a discomfort, but that it could only be perceived after a certain degree of intensity.

It is not desirable to indulge too freely in the comparison of Alhazen with modern writers. It has been asserted that in the *Optica* Herbart's doctrine of apperception and Helmholtz's views on sense-perception are clearly anticipated. The work is remarkable enough without any such extensions of its meaning; it bespeaks for its author a fine sense of distinctions and a great power of analysis; but it is obviously rooted in the science and philosophy of the Greeks. Its naturalism is that of the Peripatetics from Strato to Galen; its subtlety and refinement are akin to the qualities of Plotinus. The influence of the work began to be a force in history after the success of Witelo's transcript made in the latter part of the thirteenth century, and in some details of secondary importance Alhazen has gained by being credited with the points which were added or corrected by that faithful disciple.

§ 5. With Ibn Sina the Eastern school of Arabian philosophy ended its effective life; a train of epitomists closed the procession. The activity of Arab or Jewish philosophers was always very dependent on patronage, and the next home of culture was provided in the West. The Spanish Arabian school included Ibn Tofail (Abubekr), Ibn Baddja (Avempace), and Ibn Roshd (Averroes). None of these was endowed with any originality, unless Ibn Roshd can claim the distinction. On questions concerning the mind we find ourselves back in the old rut: emanations, spirits celestial and super-celestial and dialectical difficulties about the Active Intellect form the basis and the superstructure of the discussions. It is enough to have stated the earlier forms of these doctrines; there is no call for repetition, but Ibn Roshd must occupy our attention for a while.

Ibn Roshd was a native of Cordova; he belonged to a family of lawyers and was himself a jurist, in addition to

being a doctor and a philosopher; after a prosperous career he fell on evil days when the philosophers were no longer patronized; he died in 1198. The Western line ends with Ibn Roshd, as the Eastern did with Ibn Sina: these two stand out across the centuries like twin mountain peaks, wholly different in character, yet alike in their general outlines and in a certain mistiness at the culmination. Ibn Sina clung to the idea of individual souls, destined to individual immortality. It would be difficult to find in that teaching anything more than a dogma; for the Reason is declared to be the real essence of man, and the Reason is that into which the Active Intellect, immense and eternal, continually flows: so that if Ibn Sina was not, technically, a pantheist, one feels that he might as well have been. Ibn Roshd went the one step further and surrendered the dogmatic point that the individual soul is immortal. His doctrine was known afterwards as Monopsychism, the doctrine that there is ultimately only one Soul, that the individual reason is no more than a temporary manifestation of that generic or universal Soul, in the same sense that Humanity may be said to be manifested in the human individual. This is not so much a religious as a logical doctrine; Ibn Roshd is not concerned to prove that God is in all and all are in God: he has followed out the idea of a universal or generic human Reason, which is not identical with the Active Intellect but is related to it as a Passive or Material Intellect. The basis is a dualism of Matter and Form: the soul of the individual is no more than the particular form which constitutes the particular soul, and as such it perishes with the organism. But the Matter, as eternal potentiality, remains; so does the Active Intellect, as eternal Form. These two continually produce individual souls, and it is on this eternal continuity that Ibn Roshd insists. An analogy may make this point clearer. If we assumed Matter and a Creator, the human race might be regarded as an endless material manifestation of one principle, Humanity. This principle would not be identical with the creator: it would have an intermediate existence made eternal by the persistence of its causality. If Humanity is regarded as essentially spiritual

or intellectual, the position of Ibn Roshd is clear. What he calls the Material Reason is not the individual Reason, but a generic or racial Reason to which the individual Reason is related as species.[1] This doctrine is therefore not Pantheism, and its historical importance is due to the fact that its interpretation of universality was bound to affect very considerably any theory of the Soul which was based on the logic of universals. For this reason it is continually discussed by the later scholastics in the West. The idea of consciousness in general was ready to hand in the Neoplatonic tradition. The Aristotelian basis to which scholasticism returned in the thirteenth century was firmer ground, and the rejection of this pantheistic tendency was in accordance with the general character of Christian monotheism. The Platonists of the early Renaissance were not disinclined to revive it, and, in this respect, the course of history affords an interesting parallel to the development from Kant to Hegel, the former being more definitely Aristotelian, the latter an admirer of Neoplatonism. The true development of the idea of "consciousness in general" is to be seen in the Hegelian conception of Spirit (*Geist*) and in the more scientific form given to that branch of psychology in the nineteenth century.

[1] It is interesting to remember that Spencer said: "It (consciousness) is a specialized and individualized form of that Infinite and Eternal Energy which transcends both our knowledge and our imagination" (*Facts and Comments*, 1902).

PART II

MEDIÆVAL DOCTRINES

CHAPTER I

THE GROUNDWORK

§ 1. THE tenth and eleventh centuries were a period of political unrest and the progress of learning was slow; but the definite beginning of scholastic thought may be assigned to this period and the movement of thought from this point to the days of Thomas Aquinas has a noticeable continuity. To understand the character of this movement we must always keep in mind both the matter and the method of scholasticism. The writers are not engaged in the study of man but in the study of theories; their first object is to defend a thesis or a series of theses; and they enlist under some recognized banner to carry out either attack or defence. The method, then, is the academic method in its perfection; encyclopædic learning and astounding subtlety are the marks of the great mediæval champions: they can quote, defend, pervert and controvert with all the baffling dexterity of intellectual fencing.

The matter and the method are very closely united; for the matter is neither more nor less than the particular theses which are defended, or the particular meaning of the theses, or the definition of the terms of the theses. It will help us very considerably to state at once the principal theses which fall within our scope, as it will be obvious later that a treatise is really a collection of theses, and all that we require to know is the author's attitude toward each thesis. The propositions of the great masters are the foundations of each system: fortunately there were many masters and stagnation was not possible; the irrepressible pupil could always arise with his list of things that both were and were not so (*sic et non*); and that keen debating, by which the later scholastic synthesis was reached, can still remind us

that facts are not wholly distinct from interpretations and that our own age may well be charged with less desire for consistency than those disputants. To avoid unnecessary repetition, we shall first give a general account of the physiology known to the mediæval writers.

§ 2. The inheritance from earlier times comprised two distinct expositions of the human body. One was the *Timæus* of Plato, which, through the commentary of Chalcidius, continued to fascinate minds more pleased with poetical symmetry than scientific accuracy. The other was the doctrine of Galen, which formed the major part of the work of Constantinus Africanus. Sufficient has been said before to make clear the state of physiology during the first three centuries of the Christian era.[1] From the time of Galen down to the close of the Middle Ages nothing of importance was achieved, and any statement of the views held by separate individuals during that interval could only be a laborious repetition of acknowledged or unacknowledged borrowing. A few remarks on the literary history of medicine at this time will serve the present requirement, which is no more than to indicate what physiological or anatomical facts were known to those who constructed the anthropological works of the eleventh and twelfth centuries.

The link connecting the ancient and the mediæval schools of medicine is to be found in the Benedictine monasteries. Cassiodorus[2] (d. 573) was, in his later years, a member of this order, and he gave his brethren sound advice when he urged them to study medicine. The advice was not followed with much energy, but some books were read, and Alcuin in the ninth century put medicine on the curriculum of the schools which Charlemagne established. In the monastic hospital at Monte Cassino, a Benedictine establishment in Campania, there was a gradual development of medical studies which in time reached the dignity of a school. After flourishing for a time this school gave place to the school of Salerno. The Normans conquered the province of Naples, in which Salerno was situated, and their invasion of Italy opened the way for Greeks and Arabs who came from

[1] *H. P.* i. ch. vii. [2] Cp. p. 40.

Sicily. The school of Salerno became the most important medical school of the eleventh century. Among the learned men who left Monte Cassino to enjoy the greater freedom and more progressive spirit of Salerno was the great compiler of traditions, Constantinus Africanus.

In a previous part of this history some account was taken of the Christian Fathers whose literary activity served to keep alive what others had produced.[1] Among them Augustine and Nemesius claimed most attention, and the point at which their influence is afterwards continually obvious was the question of localization. In the original Homeric and Platonic schemes psychophysical states were localized in the body as a whole (desire in the liver, courage in the heart, reason in the head). With the advance of knowledge about the nervous system this scheme became obsolete. In its place is found the physiological distinction of "spirits" (*pneumata*) which are produced in the digestive organs, warmed by the heat of the heart, and arrive in a very refined condition at the head. As the majority after Galen do not dispute the claim of the brain to be the organ of mind, we get as the next development a localization of mental faculties in parts of the cranium. There is obviously a considerable difference between the merely physiological statement that the brain contains a special kind of "spirits" and this assertion about the distinct areas within the brain and their relation to the distinct faculties. In view of the great importance which the nineteenth century attached to cerebral localization, it is interesting to trace the beginnings of the subject.

Among the medical men who lived after Galen and before the Arab supremacy, Alexander of Tralles was distinguished for direct and acute observation and Oribasius for skilful diagnosis. From the work of these two men, principally, the most important features of mental pathology were determined, and henceforth all medical men knew, or could know, that phrenitis, melancholia, or any other such affliction, was dependent on cerebral disorders. This was, however, only a determination of the locality of such conditions as inflammation of the brain or lesions. In Theophilus we find the

[1] Cp. *H. P.* i. chapters viii–x.

passage from anatomy to psychology more definitely attempted. This physician describes how the skull may be opened, how the brain may be exposed, and how then it will be possible to observe several cavities in which the psychic pneuma is found. The psychic pneuma has three activities; representation, thought and memory: these are localized in the front, middle and posterior cavities respectively. There seems to have been no reason for this particular distribution, except a general sense of the fitness of things. As food enters the mouth, is conveyed to the stomach, and thence to the other organs, so by tacit agreement it was understood that sense-impressions came in by the senses (especially the eye), were "ruminated" upon in the middle cavity, and so passed on to the storehouse out of harm's way. Men have evolved worse notions than that, and Theophilus is to be remembered also as the first person who located the first pair of cranial nerves. But no interest in the progress of anatomy or physiology should be allowed to obscure the fact that somehow and somewhere a transition has been made from the objective determination of the place where a nerve runs or a lesion has occurred to that wholly different question of the "place" where thought or memory dwells. So momentous a transition was easy to make: we see where the eye is: we think where the mind is. When knowledge is small, analogy is delusively easy.

This transition having once been made, no further obstacle prevented the continuous elaboration of the psychophysiological views which naturally emerged. Aristotle and Galen had been united; the "faculties" of Aristotle's *De Anima* were firmly welded on to the anatomical "parts" of Galen's work on the body. In the eleventh century this synthesis of ideas appeared in an authoritative form in the works of Constantinus Africanus. Constantine, called Africanus because Carthage was supposed to be his native place, after travelling in the East, settled down at Monte Casino, and in the Benedictine monastery of that place composed translations of the extant works of Hippocrates, Galen and others (d. 1087). There seems to be little doubt that Constantine did not use the originals as the basis of his own compilation: his importance consisted entirely in

the fact that he made a large quantity of material easily available. We see this material furnishing the pages of Adelard of Bath, William of Conches, and all the other writers who favour the sciences of this world: in fact, everyone who aspired to write a "Microcosmus" found in the pages of the African much "useful information."

Into the details of this physiological psychology we shall make no further excursions. In view of the reports to be given of later writers it will be useful to remember the rather confusing effect of translating Greek terms from their Latin equivalents into our modern (philologically very complex) terminology. The term "spirit" means to the average Anglo-Saxon something opposed to "matter." Spiritual is therefore the antithesis of material. But in the eleventh century "*spiritus*" was equivalent to "pneuma" and meant the material basis of life. Hence we find *spiritus vitalis* (πνεῦμα ζωτικόν) for the spirits produced from food (aliment in general): *spiritus spiritualis* for breath: *spiritus animalis* for the "*anima*" or highest vital substance, by which man is made "animate." "Animal spirits" are therefore the specific *human* spirits and the indispensable basis of sense or thought. The animals, as such, have vital spirits, but nothing above that, unless the error of the materialist is overlooked. On these points there was no general consensus. The conflict of interests naturally affected the following questions most acutely:

(*a*) The purely ecclesiastical influence was exerted against any recognition of the fact that mental powers depended on the body: usually, however, the senses were left without defence to the "physical" theorists.

(*b*) A scientific question was raised in the form reported by Constantine: "Some philosophers say the spirits of the brain are the soul, and the soul is corporeal: others say these spirits are the instrument of the soul, and the soul is incorporeal."

(*c*) A question dependent on this is the legitimate question of a criterion of the higher life: if man is distinct from animals, what is the nature of that distinction? Writers in the twelfth century were quite aware of the nature and the implications of this question. Materialists (and heretics)

inclined to be generous to animals: they gave them souls because they obviously had sensations, discrimination and voluntary movement.[1] Against this the opponents urged many familiar arguments which all come back ultimately to a profession of faith: man has something wholly different from the brute nature—a *spiritus rationalis* or *incorporeus*. Here we reach the really "spiritual" spirit. In spite of the rather obvious contradiction of the terms "immaterial breath," these writers return by sheer force of assertion to the confused mixture of Greek and Hebrew thought, out of which came originally the idea of a supernatural immaterial Pneuma. The Neoplatonic streams brought down this last and worst sediment of antiquity, from which the subsequent theories were never to be wholly free.

§ 3. The problems of sense-perception are treated principally in the form of discussions about the nature of "species." In every perception there is some effective relation established between object and subject. Aristotle had said that the senses receive the form of an object without the matter The Atomists had explained the physical part of this process as the emission of species or images (εἴδωλα, Epicurus: *imagines* or *species*, Lucretius) by objects and the transference of these images from outside into the channels filled with spirits. Thus physical and physiological data were supplied; but the process of transmitting these ideas had robbed them of their meaning, and the earlier mediæval writers did not grasp either the value or the limitations of these traditions. So long as men were content to regard the soul as a mystery there was no acute problem, but as time progressed the inevitable questions arose. The soul as a power of thought is "indifferent," and therefore it is necessary to explain why it has a given activity at a given time; it is also necessary to explain how the material process, whether external motion or movement of spirits, becomes a spiritual process. Between them these questions involve all the problems of modern psychology, problems of body and mind, matter and thought, image and idea. What

[1] So Adelard, quoted Soury, i. 348—an example of the more "advanced" thinking of that age.

the mediæval writers contributed to the problem was, first, a growing comprehension of the fact that nothing could be attained by merely treating the physical and the psychic as two disconnected series of facts: and, secondly, an honest attempt to analyse the process of apprehension by the senses. It seemed to them that the soul must become like that which it perceives: for in knowing it knows itself, and when that knowing is determined as knowledge of this or that, the soul must then be knowing itself as this or that. The first essential, then, is a process of assimilation making the soul like the object. As the object is spatially distinct from the subject, it was natural to assert that logically there must be (*a*) the action of the object, (*b*) the transmission of the action, and (*c*) the "passive" reception of the activity. These were denoted respectively (*a*) *species impressa*, (*b*) *species in medio*, (*c*) *species expressa*. The act of knowing follows on the formation of the *species expressa*: in other words, the external object causes the soul to produce an internal object, and we are said to apprehend when we know this internal object.

The doctrine of species was the object of much criticism in the later scholastic period: afterwards it was not only criticized but also ridiculed. It was liable to abuse, as most theories are; but I must confess that I have been unable to find in it much ground for the merriment of later writers, unless the basis for it is that inertia which prevents people from coping with the subtleties of mediæval Latin. The objectionable points are two: first, the useless formality of the distinction between the act of knowing and the *species expressa*; and, second, the complementary theory of *species intelligibiles*. The former seems to have been a confusion between the object as thing and the object of the thought (called "subject" even in Berkeley's time). This triad, thought, object of the thought and object thought of, clearly can be reduced to two: for the first two terms only denote the thinking and the content of thought. But that reduction was made in one sense by Ockham, and in another sense it was not possible until Kant revised the whole subject. It should be remembered that Plato, Aristotle and the scholastics never forgot the distinction between having an

idea and actually envisaging an idea (ἔχειν, θεωρεῖν). If we deny that distinction, the denial must be made in full acknowledgment of the fact that latent or subconscious elements are thereby condemned as nonentities. Many who deride the doctrine of species would not have the courage to face that consequence. The "*species intelligibiles*" I regard as a useless intrusion by metaphysics into psychology, a mistaken retention of Platonic or Neoplatonic doctrines in a sphere to which they never belonged. Anyone who accepts this opinion must also admit that, at the time of which we are now speaking, the course followed by the nominalists was the only one likely to assist the deliverance of psychology from irrelevant ontological assumptions.

§ 4. On the subject of the inner senses (memory, imagination, judgment) we find a general agreement and acceptance of tradition, with differences to be noted later. The more important topics are Reason and Will. Both for the Arab and the European philosopher of the Middle Ages, Reason was the sphere of expatiation. We might regard mediæval psychology as a theory of Reason without doing it injustice; it is occupied continually with exploiting and exploding theories of Reason. The cause is obvious. Aristotle had not been explicit about Reason. Augustine had given rein to his imagination, though moderately. Both might be interpreted, commented upon, and developed with no obstruction except that of opposed commentaries. The theological factors assist the tendency to make Reason the mark of man's superiority over animals and, in some sense, superhuman. This tendency, most marked where the writer inclines to pantheism, is finally modified into an acceptable intellectualism. The actual difference between man and the animals is then accepted as sufficient, and the powers of the intellect are regarded as immanent, not transcendent. Though this development obliterates the doctrine that a superhuman light shines in upon the darkness of human reason, the original Aristotelian point is not forgotten. That point, the real storm-centre of all the ages, is that the operations of the senses do not wholly account for or produce the intellectual life. The more ecstatic

writers start from that point to construct baseless fabrications; the separated intellect was the beginning of a whole system of substantiated abstractions called celestial spirits; human psychology led on to angelic psychology, from which it was no great step to a psychology of the Divine Mind. The results were not directly edifying or psychological: but people too often forget that the terms in which a problem is solved do not always damage the truth of the solution. Though this literature is full of discussions about angels, pure spirits, pure activities and the like, it is obvious that there is really nothing in what is said that does not in some way reflect an experience. The pure spirits are described as having certain selected faculties, which thus become isolated to the mind of the thinker. It may seem absurd to argue about the ways in which angels can know material objects; but it is a useful way of presenting to one's mind the idea of an intellect that has no body, and, on the hypothesis of the scholastics, man was already half way to that state and might therefore rightly interest himself in thinking about it. In the modern contempt for this kind of speculation there is a peculiar mixture of common sense and inconsistency; a textbook of psychology that ventured on such themes would be scouted, while every hymn-book embalms the angelology of the Persians. Perhaps, after all, the contempt, in practice, is the contempt of those who see too little for those who see too much; at least it is most often the contempt of the half-hearted for those who take life seriously. To destroy these doctrines was to change the whole basis of Western thought: the rejection of the superhuman intellect was the removal of a foundation from a structure that rivalled the tower of Babel; when the analytic method asserted its sway, these transcendental realities were written down as subjective and seemed to disappear; perhaps, as we progress, it will become apparent that the disappearance was not so complete as it promised to be.

The Will is discussed at length by most writers. The point at issue is whether the Will depends on the Intellect for the knowledge of the end of action, or whether it is the Will that actually makes the true apprehension of the end possible. This is a question of great interest arising from

the Augustinian formula "Believe that you may understand." Those who said that the intellect took precedence (intellectualists) were right in their point that one must know the end in order to aim at it; but the voluntarists turn the flank of that party by using the term Will in two senses. In one sense it is merely a power of choice (*electio*), which presupposes a knowledge of the alternatives; in the other sense it is the whole trend of character, which itself constitutes the Good for us and so colours even the intellectual outlook. This was a deep and true view, but technically the intellectualists regained their ground by pointing out that the character in that sense was an illumination, and that the illumination converted knowledge into intuition, which being an absolute conviction, amounted to knowledge and will all in one. So that while one party united intellect to will, the other persisted in uniting will to intellect!

§ 5. Conscience was a subject which naturally attracted much attention in an age that was predominantly theological. The reflective consciousness of the Stoics produced the explicit idea of an inner judgment or personal conviction, to which they gave the name *συνείδησις*, the Ciceronian *conscientia*. In the sphere of worldly knowledge this inner conviction is simply the sense of rightness or wrongness in respect of judgments, and as such it persisted during the Middle Ages under its original Latin name of *conscientia*. But this did not suffice for the needs of the mediæval theologian, who took more interest in the religious sentiments and concerned himself with sin rather than error. At the hands of various writers—Alexander Neckam, William of Auvergne, Alexander of Hales and others—there grew up a body of doctrine about a faculty called synderesis. The name was variously spelled scinderesis, synteresis and synderesis; there was some uncertainty as to its origin and exact meaning, Albert undertaking to derive it from *syn* and *hæresis*, the opinion that clings to a person or coheres with an infallible universal judgment. In reality it was originally the Greek *συντήρησις* and its origin, for the mediævalists, has been traced to Jerome's commentary on the vision of Ezekiel. In that commentary the four

animals are equated with the powers of the soul, the first three being the Platonic Reason, Spirit, and Desire; the fourth is alleged to be "what the Greeks called *συντήρησις*, a spark of conviction (*conscientiæ*) in the breast of Adam which, after his expulsion from Paradise, is not extinguished." From this beginning the word became a technical term for consciousness of sin, the religious conception of "conscience," as distinct from a mere sense of intellectual error.

Though the term "synderesis" was fully established in the days of Albert and Thomas, and still appears in textbooks of psychology,[1] its exact significance from the psychological point of view was not clearly defined. The ordinary term "conscience" denoted a mental state which the scholastics divided into two parts: *synderesis* was the intuitive grasp of the highest principles in the sphere of practical reason, *conscientia* was the power of applying those principles to particular cases. But the persistent fusion between Aristotelian and Neoplatonic views prevented the scholastics (with the exception of St. Thomas) from being clear as to whether this faculty of the mind was due to nature or training: in other words, they did not decide whether it was an innate "light of nature" or an acquired power of judgment. The Aristotelian bent of Albert and Thomas leads them to coordinate this moral insight with the intuitive reason that grasps first principles in science. But before and after those writers there was a tendency to treat the moral insight as unique. This was, in fact, the first phase of the long struggle over moral sentiments. Albert speaks at times as though it was a question of will rather than intellect, and that also was a point which was destined to remain in dispute down to, and after, Kant's treatment of the Practical Reason; while Bonaventura expresses the mystical (Platonic) view that there is in every creature a natural love of good and a natural remorse for evildoing: their inability to agree was purely temperamental. This discussion, more than any other, produced many fine distinctions, and particularly assisted the introspective analysis of purpose and of emotions.

[1] E.g. Maher, *Psychology*, p. 335.

§ 6. The Immortality of the Soul and other speculative questions are treated at much length; they do not enter into our subject directly, but exert considerable influence as fixed pre-suppositions. The so-called demonstrations of immortality are psychologically of no interest; the ancient argument that some truths are immortal and therefore the soul nurtured on those truths would be immortal, enters into the theory of the intellect very considerably; it is of some antiquarian interest as a survival of the old idea of the "drug of immortality," the food of eternal life, reduced now to *rationes æternæ* and sustaining a ghostly intellect through an eternity of abstract contemplation. Now and again we meet with a flash of deeper insight when consciousness is made indestructible in its own right and the opponent called on to prove that the knower perishes with the known. But normally religion dictated to psychology; the possibility of basing the religion on the psychology was not seen, unless we may attribute to the Arabs a religion of consciousness. That may legitimately be done in the case of the Averroists, since the attraction that Averroism had for the later scholastics was due precisely to the failure of dogma and the psychological trend of the criticisms levelled against the earlier scholastics. When the subjective character of psychosophy or "angelic psychology" was realized; when, simultaneously and for the same reasons, the universal ideas ceased to dwell in any of the Ptolemaic spheres, the independent character of consciousness began to be more clearly seen. Then psychology was transferred from the theologians to the naturalists, and the religion of the psychologists, speculative or purely mystical, began to quicken the dying body of doctrine.

A very important topic is discussed under the rubric, Does the soul know itself? This question may be stated in the form, Is there a fundamental activity of the soul as distinct from the mere sequence of states? The discussion is usually diverted to points that have a religious significance: for if the soul does not know itself, its existence is merely a knowledge of things and it is itself (as some Indian philosophers had said) no more than a

mirror of Nature. If Nature is corruptible and will finally pass away, the reflections must also perish and nothing will be left. The problem is insoluble, but its existence served to draw attention to the necessity of a regulative principle. Stated in a more modern form, this topic was essentially identical with the question whether consciousness and the contents of consciousness are to be regarded as identical. In part this subject looks back to Aristotle and the Arabs (the creative reason); in part it reaches forward to the later doctrine that a series of impressions cannot know itself.

§ 7. Some general principles remain to be discussed. First comes the fundamental distinction of form and matter. The doctrine of Augustine retained the Stoic view of germinal reasons (*rationes seminales*, λόγοι σπερματικοί). According to this doctrine God has not left matter in a purely indefinite condition, but has given it definite lines of development; it is not correct to say that anything may become anything else; on the contrary, the type is determined by the immanent nature of the matter, and only a certain degree of variation is possible. Lucretius had asserted this regularity of causation as part of the atomic doctrine of nature; but the Augustinian view differs from that (atheistic) position through its assertion that the germinal reason is an idea or purpose which God had first in His mind and then projected into matter. From this basis many different conclusions could be evolved. As God is thus the archetypal mind, creating both the matter and the laws of development in matter, pantheism was easily reached by the unwary. As, on the other hand, the reasons inherent in the matter give it an independent existence, this could also be a starting-point for naturalism; for clearly the best method to pursue was to study the actual developments of matter if one wished to discover what were the ideas by which God had quickened it.

The Aristotelian view is taken to be the opposite of this; matter is formless and passive. The theological desire to reduce everything to creation, and keep every-

thing eternally dependent on God's continual activity, brought this into prominence; but it is interesting to note that the pantheism of Eriugena and the naturalism of the sixteenth century sprang from the fuller appreciation of nature which the former (Platonic, Augustinian) attitude encouraged.

The topic of Plurality of Forms arises from the problem of soul and body. It is generally admitted that soul means form; but form is taken to mean a definite self-subsisting entity, owing to a confusion of Plato's "idea" with Aristotle's "form." Aristotle's method led him to classify the activities of the organism under three main heads, the vegetative, the sensitive and the rational. The scholastics were in doubt whether there could be definite activities without definite agents; in other words, whether these three types of function should not be called three souls. In that case man would be constituted by three "forms," in some sense one, and in more senses not one. We might well hope to see from this a discussion of multiple personality, or at least an interest in the relative powers of the souls and their possible dissociation; but the point seems to have been of most interest when applied to the problem of Christ's condition in the tomb and to the question whether the lower souls remained after the divine nature was abstracted. These topics were introduced at unsuitable moments without apology, and no history could be complete without occasional reference to them.

The question of plurality of forms is capable of a different statement. Taking the soul as one unitary form, it is still conceivable that the body should have its own form, being a highly developed state of matter. Further still, the elements are not simple but complex, and so may also have a form. At this rate we should have the form of the elements contained in the form of the body, and that contained in the form of the soul; or else all the forms could be said to coexist without being fused.

The whole question, taken in either way, is very much a matter of terminology. As time progressed the doctrine of unity gradually ousted its opponent. This appeals to the modern reader as the only sensible view, yet the

problem of the scholastics was a very real one so long as they persisted in thinking that human nature was animal nature raised to a higher plane by the addition of higher factors; for, on that basis, either the animal nature is in itself incomplete, or that which is complete receives an addition that must remain external to its nature. The problem disappears gradually; the better understanding of Aristotle removed all authority for the idea of three souls; Augustine's view that sensation is an act of the soul, not an operation of the body, was amended and transformed into the idea of consciousness as the real subject of psychology, with physiology as a collateral aid. In its essential significance, however, the problem persists down to modern times, being represented partly by the concept of subordinate reflex centres, partly by the doctrine of dissociated "personalities." For what the mediæval writers say on the subject shows that they saw, at least vaguely, the difficulty of comprehending in one formula the unity of consciousness and the diversity of organic functions (cerebral and reflex, conscious and automatic).

The controversy over universals, which necessarily occupies so much space in histories of mediæval philosophy, dealt with a subject that offered scope for psychological treatment; but nothing was further from the minds of the disputants. The problem was not approached from the basis of an investigation into the actual processes of the mind; the Realists and the Nominalists were guided by other considerations. Yet the question was ultimately psychological; if the Realists maintained any form of Platonism, they could not avoid at least describing the relation between the real existent universals and the mind: if the Nominalists reduced universality to a quality of thought, they too were driven to explain how the mind gets the universal out of the particular and what is the exact nature of this work of the mind.

The problem of the Universals was both deep and wide; it ramified through every part of knowledge and affected every department of thought. With many of its developments we have no concern, but its relation to psychology

is a vital point for the history of that subject, and we must halt for a time to review its different phases.

In the first place, what of the soul? That is usually taken to be an entity, an independent self-subsistent thing. But the question then arises, Is it a name for a group of functions or something over and above those functions, a substance that has or supports those activities? The Nominalist tends toward the position that the term "soul" is a name for the totality of functions: it is not a *mere* name, a sound signifying nothing: but, on the other hand, it is not the name of something that remains, alone and solitary, when all the attributes are stripped off. The Realist takes the other road; there is a world of Ideas with which the soul has communion by right of its own nature; stripped of the senses and disconnected from the body, it may confront the Ideas or enter the presence of God. A deep chasm separated these two points of view. It was destined to widen as time went on; for the Nominalist became more and more occupied with analysis and the senses, while the Realist developed an introspective psychology; the Nominalists foreshadowed the coming of empirical psychology, while the Realists have their successors in the later mystics and in some forms of Rationalism.

The definition of Reason is the true centre of the controversy. Reason is a term that covers a multitude of notions, and in sorting these out the Realist and the Nominalist find themselves working in the same field. Given the Realistic position as to the soul, Reason has for one of its meanings the activity which the soul puts forth from itself, an intuition into truth or an inner development of innate notions. This definition omits the consideration of truth derived from without through the senses, and some room has to be given, however grudgingly, to those empirical truths. The Nominalistic basis, on the contrary, developed the idea that the senses are the source of knowledge and so tended to make Reason the highest activity of the sensuous intellect. While the Realists were drifting helplessly on to the rocks that make shipwreck of science, the Nominalists were equally liable to come to grief over the possibility of supersensible reality. The spirit of the

age dictated the form of the question; the crucial test was the nature of God and our knowledge of God. But we need not confine ourselves to that aspect of the question; the problem is as clear, and more free from controversial points, if we take the laws of nature as the focus of inquiry. For the Realist the universality of those laws was manifest, and Reason was a faculty of universals; for the Nominalist the similarity of particular cases has to serve as a substitute for true universality, and he has to admit that he cannot go beyond that. In a word, the distinction which was afterwards expressed as one between intuitive Reason and calculative reasoning was already latent in the controversy between Realists and Nominalists. The progress of the question was dependent on many factors which only gradually came into action as other branches of study began to develop.

Lastly, we must indicate here another fundamental point. The distinction of soul and body which is implicit in the Realist line of thought eliminates the feelings; in opposition to this, Nominalism combines with its higher valuation of the senses a greater willingness to regard the feelings positively and not negatively. Owing to the erratic development of Mysticism, which at one time poses as rationalism and at another takes refuge in emotionalism, this distinction is obscured. We shall see at a later stage how far the psychological problems were affected by these different tendencies.

CHAPTER II

THE BEGINNINGS OF MEDIÆVAL PSYCHOLOGY

§ 1. WHILE the East was developing the religion and philosophy of Islam, the West had been returning to the primitive levels of the Teuton. The advance of the barbarians had for a time checked the growth of that culture which emanated from the Roman Empire, while it could put in its place nothing but superstition and the simple grandeur of its myths. Then came the age of Charlemagne, the godlike hero who drove back the infidel, and with his restoration of peace and order we find the cause of learning once more in the ascendant.

The scholars of the ninth century are a peculiarly interesting group. During the struggles of the sixth, seventh and eighth centuries Wisdom seems to have fled to the uttermost parts of the earth. In the West this was Ireland, and it is from Ireland that the wise men reappear to go eastward and shine in the kingdom of the Franks. With Ireland must be associated England and Scotland. From these three emerges a line of eminent men which is really distinct in its character: it appears before the Arabic influence begins to affect the thought of the West and has a pronounced tendency toward (*a*) assertion of the supremacy of the will and (*b*) investigation of the empirical bases of speculation. At first there is too much dependence on traditional forms, and in consequence the points of interest are not sharply distinguished, but before long these begin to appear, and it is possible to show that there is a fundamental difference between the Realist and the Nominalist, the mystic and the empiricist. Then it also becomes apparent that the strongest nominalistic influence comes from

men like John of Salisbury and Duns Scotus, to which rationalistic mysticism is a complete antithesis.

Alcuin (735–804 A.D.), famous as the moving spirit of the Carolingian revival, was by nature and circumstances chiefly an organizer of studies. Among the subjects recognized in the curriculum of the period no room was found for the study of man except in so far as this was involved in ethics and theology. An original mind could have put a very large amount of psychology into these two subjects, but Alcuin, in his treatise *De Animæ Ratione*, merely reproduced the Augustinian theory in outline. With Alcuin, as with his pupil Rhabanus Maurus (776–856 A.D.), the soul is the essence of the life of man, but not the basis of the animal life. Thus the education of the West began again, under the auspices of Christian Platonism, with a strong bias toward supernaturalism and a predisposition toward the neglect of the body and of nature. Against these disadvantages may be set the facts that spiritualistic psychology asserted the unity of the soul, that it avoided speaking of " parts " of the soul, and was a good basis for the introspective work carried on by the later Augustinian school of mystics.

The greatest speculative mind of the ninth century was John Scotus Eriugena, another of those who were drawn from the western islands to the mainland of Europe. His birth, parentage, character and career are all alike involved in obscurity; but the little that is known about him reveals a man well fitted for the times. There is a strong likeness between this man and that other wandering spirit of the next renascence, Giordano Bruno. Eriugena was not, strictly speaking, an ecclesiastic, though the distinction between the philosophers and the divines cannot have been great at this time. Eriugena seems more like a rhapsodist who has specialized in philosophic traditions: he comes as the man of wisdom, to supplement the man of destiny, a point neatly expressed in the statement that Eriugena was the Charlemagne of philosophy. In his method and in his matter Eriugena carries us back to the days of primitive myth: in him is born again the tendency to pure romance which was the beginning of speculative

thought. But this rebirth is no longer a purely spontaneous beginning: it has its background and its inherited dispositions: while it draws inspiration from the most primitive sources of thought and feeling, it veils its impulses in the stiff garb of traditional phrases.

A wise man must justify his existence by being useful. This primitive notion had not yet disappeared from Western Europe, and the metaphysician had not yet become merely a thinker. If the goal of life is the return to God, there must be a way by which men return: the practical use of the wise man is to show that way. He does not do this by example only, for it would be absurd to suppose that the way is the same for all: he does it rather by theory, the theory of the nature of man and of the kind of action by which the human may become divine. Here then the myth conceals a science of life as practice: the theology is the shell that contains the religion and the ethics, while the ethics is the approach to psychology.

When we come finally to the practical part of this doctrine, there is not much to grasp. Eriugena does not conceal the sources of his formulæ: he is rather proud of his learning, and has for his authorities all the writers from Augustine onwards, chiefly the pseudo-Dionysius. But in spite of his learning Eriugena has a distinctive line of thought which marks him off from those whom he quotes. His thought struggles between two ways of looking at life, neither of which he will wholly abandon. Of these one is the empirical, obviously suggested by the Aristotelian element in Eriugena's education: the other is the Neoplatonic theory of logical inclusion, which, by putting the particular in the universal, made the unwary think that it was possible to get the particular out of the universal before it had been put there. So Eriugena becomes, as the result of his Neoplatonism, a realist and declares for the supremacy of reason. At the same time he keeps his belief in the individual, and is compelled to give a place to the will which is not beneath that of reason. These two are therefore coordinate, but in a sense it is the will that has the superiority, for the reason only lights the way, while the will is the agent, the power. No critical questions are introduced here: Eriugena

has explained the relation of the deliberative and executive powers in the individual, and also preserved his sense of the fitness of things by giving the Supreme Ruler an arbitrary power of decision, the will of God above and the will in man below. This was the way in which the theory reflected its sources and its circumstances. It would be no gain to dwell on the more formal elements, and it is only necessary to record that Eriugena restated them: there is, he says, a *sensus exterior* belonging to the body and not of much account: there is the *sensus interior*, by which we have knowledge of the images of sense and memory: there is discursive thought, intellect proper, and finally the highest stage, the *visio intellectualis*. It is interesting to note that Eriugena calls this the real experience, thus giving strong expression to the fact that experience is essentially the innermost core of the spiritual life, and so anticipating the Victorines, while he has a latent idea that the difference between this gnostic intuition and what the ordinary person calls reason lies in the fact that the former is individual and the latter is social.

§ 2. The tenth century was the time when Arabian influences first began to affect the scholars of the West, notably in the case of Gerbert (died as Pope Sylvester II, 1003 A.D.). This influence was confined at first to the sphere of natural science, but the kind of interest which is developed by the study of such a subject as chemistry is quite distinct from the romantic interest of the myth-maker. The men of this century produced no cosmological schemes; they were engaged in scientific study, in administrative work, or in the study of morals as the practical side of theology. While this fact has caused them to occupy little space in histories of philosophy, their importance ought not to be underrated. Their problems are distressingly practical. From the spacious movements of theosophy they drop suddenly to details; they want to know exactly what such a term as "transubstantiation" means when an animal and not a man eats the consecrated host.[1] This is the kind of

[1] The often quoted problem, Does the mouse that eats the consecrated host eat the body of the Lord? It is interesting to note that "trivial" means belonging to the *trivium*. In this sense the point was "trivial"

question which can be set aside as trivial, but its ultimate significance is not small; it heralds the time when large propositions would be tested by particular applications.

The historians who treat this movement contemptuously overlook the fact that Anselm springs directly from it. Eriugena had been content to assert that God is all, and yet, as we cannot know what He is, must be nothing; Eriugena's pupil had undertaken to show that something can be nothing; but Anselm requires to prove the objective reality of God and to make that proof equivalent to a scientific demonstration. Anselm recognizes that in experience the subjective effect is due to an objective cause; he adopts the plan of arguing from effect to cause, and so reaches the position that the idea of God establishes the objective existence of God. It is easy to recognize in this the attempt to explain a general idea by asserting the existence of a general object: it is equally easy to see that Anselm should have begun by studying the elements of the general idea, which would have led him to a more penetrating study of experience. This he did not do: his psychology did not take for its basis the senses, but took reason as an independent faculty of ideas and added to it the will as the determinating power. Anselm asserts the will to believe without discussing the genesis of belief.

§ 3. In the twelfth century the school of Chartres, founded by Fulbert, was the stronghold of Realism. While that fact is important for historians of philosophy, for the present purpose it is even more important to remember that the great men of this school were Platonists. They form a group sometimes called the Christian Platonists of the twelfth century. Bernard of Chartres (d. 1130) was succeeded by Theoderic, who had among his disciples John of Salisbury. At this period in the history of Western thought philosophical ideas were not precise; almost the only mark of a Platonist by which he could be distinguished was belief in an active principle in matter. This explains what seems to many students a paradox, namely the tendency of the Platonists toward a new appreciation of the world and its phenomena. Platonism, and afterwards the Neo-

platonic teaching, had more than once been almost identical with mystic asceticism. Here, in the twelfth century, it appears as the parent and protector of the sciences. The movement can be studied in the work of William of Conches (1080–1154), who began by transgressing the limits of orthodoxy and, being reprimanded, turned his attention to the sciences. This is itself a curious point. From the Platonic basis it was possible for an ingenious mind to build up either a doctrine of the World-Soul or a system of anthropology. The former naturally led to collisions with theism and accusations of pantheism; the latter was a region to which apparently little attention was paid, as the Church had no quarrel with the sciences. From what is known directly and indirectly about the works of William, it is evident that he was a man of great ability and energy. Taken all together, his writings form an encyclopædia not unlike the work of Rhaban Maur, nor very much in advance of it. The subject was the universe: cosmology, or the structure of the earth and the heavens, was the foundation: a doctrine of elements (earth, air, fire and water) and of qualities (hot, cold, wet, dry) was compiled from the available literary sources; Plato and Lucretius dwelt together in these hospitable pages, and their author subscribed to a doctrine of atoms which was robbed of its natural "materialism" by being imperfectly understood. By this ascent through nature William arrives at the nature of man, which he describes with great minuteness in an orderly genetic fashion, beginning with the embryo, its development, its animation, its evolution into an independent organism, its relation to its environment after birth, its growth to the adult form, with the consequent narration of the anatomy, physiology and pneumatology of the normal human being. The last topic, pneumatology, is the traditional doctrine of spirits, including those which subserve the operations of sense and thought. The material for the work is drawn mainly from Constantinus Africanus and exhibits no novel features so far. As a contribution to the literature of the period the work is important on account of its form and limits. It is presented as an account of human nature and human life which ascends from matter to mind, and is naturalistic if not materialistic. The highest

human function, thought, is here closely connected with the spirits of the brain; the soul of man is "a spirit which, united with the body, gives man aptness to discriminate and understand." At the same time William does not deny that the soul is substantial, independent and separable from the body; he merely implies that such topics are not part of that natural history to which he limits his attention. As mental operations he names *ingenium, opinio, ratio, intelligentia, memoria.* The list is instructive for two reasons: it includes intelligence as simply the developed form of thought and therefore ultimately derived from sensation: it introduces as a datum the natural power of perception called *ingenium.* Presumably this term is equivalent to a modern conception of "awareness" as the real beginning of mental development. For *ingenium* is defined as "vis animæ naturalis ad aliquid cito percipiendum." It is introduced as the specific mark of the rational creature, and seems by definition to contradict the whole tradition of a passive sense-receptivity. But on these subjects William of Conches had but little to say, and we must remain uncertain how much insight into the nature of the mind he really possessed.

Other writers of the twelfth century were occupied with theories that showed an increasing opposition to realism in logic and a growing interest in the physical aspects of human life. Adelard of Bath (c. 1116) follows Plato and Augustine in his psychology, making the soul "entirely independent of the body" and intellectual knowledge wholly innate. He travelled in Greece, Spain, Asia Minor and Egypt, and was instrumental in extending the knowledge of Galen as reflected in Constantinus Africanus. Abelard (1079–1142) was chiefly important for his critical attitude and his influence in bringing to notice secular topics. "He fixed the attention of his contemporaries on the soul, its power of abstraction and its function in the genesis of knowledge,"[1] but beyond this he made no contributions to psychology.

The tract *De Intellectibus* has been ascribed to Abelard, but is now regarded as due to some other writer of this period. It has some importance as indicative of changes

[1] De Wulf, *History of Mediæval Philosophy*, E. Tr. p. 193.

then taking place. The main topic is the distinction of conception from sense, reason, imagination and other faculties. The essay seems to be largely based on Aristotle, perhaps on the sixth book of the Ethics, with Boëthius as mediating authority. Emphasis is laid on sensation; all knowledge is said to depend on the senses: imagination mediates between sense and intellect, being a confused perception of the soul—a remark that seems to anticipate the later doctrine of confused or indistinct ideas. On the whole, the points made are logical rather than psychological. In some respects material may have been drawn from Aristotle's *Analytics*, which were then newly acquired.

While the author of the *De Intellectibus* opposes sense to judgment, John of Salisbury (d. 1180) inclines to treat sensation as a primitive power of judgment. John was a man of wide experience and keenly critical in his attitude toward the school logic. In his opposition to the formalism of current teaching he represents the first vague movement toward the outlook of the Renaissance. Seeing the barrenness of a mere dialectic, he emphasized the need of studying the genesis of knowledge, which means in practice substituting for logical formulæ a consideration of actual methods of thinking. The soul is defined, in the Platonic manner, as simple and immortal; but all knowledge is said to originate in the senses, for sensation is the means by which we come into relation with the world of things. There is a world of immaterial realities which are known by the intellect, and absolute truth is attained by knowing the "eternal reasons" (*rationes æternæ*), but the chain of faculties rises from the senses with no intrusion from without. The relation of the intellectual powers to the physiological basis is also considered, so that we may recognize in John of Salisbury a definitely naturalistic tendency, antagonistic to the Arabian influences.

§ 4. The scholastic lines of thought were not the only ones developed or suggested in the twelfth century. Two others deserve notice, namely the atomistic doctrines and the purely mystical.

(1) We have already noticed that certain of the

scholastics were prepared to adopt atomistic theories in the sphere of cosmology; but that did not prevent them from advancing other views of the soul. The atomism of the Cathari and Albigenses was more complete; they followed the Epicurean School in believing that the soul perishes with the body. In so doing they relied upon the analogy between human and animal souls; as the soul was asserted to be in all cases immaterial, it followed that, in the case of animals, an immaterial principle can perish; and what ground is then left for making an exception of the human soul? This is one of the few suggestions of a comparative method in psychology to be found at this time; it would have been more successful perhaps if it had been applied to a more suitable topic than immortality.

(2) The mysticism of the twelfth century was given its classic exposition in the Abbey of St. Victor. Abelard's unsparing dialectic had driven William of Champeaux to the shelter of this institution in 1108, and from that time onward it became the centre of a movement which combined practical austerity with a theoretical and literary opposition to all rationalistic tendencies. The greatest thinker of the school was Hugh of St. Victor, originally a Saxon noble who belonged to a German monastery. He came to France in 1115, at the age of twenty, and in 1133 was made director of studies at St. Victor: he remained there till his death in 1141, and was succeeded by Richard, under whom the school maintained its character and high repute till 1173. Mediæval and modern writers are unanimous in giving Hugh the credit of making the school famous. Great in learning and in character, he was not devoid of originality, and his influence was a constant factor in all the later scholastic philosophy. It may not be wholly fanciful to see in Hugh's temperament the signs of a distinctively Teutonic influence; in any case we have here to deal with that line of thought which runs from the school of St. Victor down to Meister Eckhart and the German theologians.

Mediæval psychology is so inextricably mixed with other subjects that it is easy to miss the developments which emerge from time to time as the writers shift the

centre of interest. Yet the germs of many sciences are to be found in the works of this era, and the Victorines may be described as authors of a psychology of the religious or contemplative life, intended to be a supplement to the physiological and analytical psychologies which represented the Arabian or Aristotelian influences. It is true that their basis was Augustine and that they were themselves sufficiently trained in the teachings of the schools to be aware of their affinities, but it is also true that they expressed in their own time a distinctive view of the inner life, and by so doing made to contemporary thought a unique contribution.

Before stating the more introspective part of Hugh's teaching we may notice that his position is primarily animistic. In man there are three "forces," the natural, the vital and the animal. Natural force has its place in the liver and controls the blood and the humours of the body. Vital force is located in the heart; on it depend heat and respiration. Animal force is in the brain: that part which serves for sense in the anterior regions: that which controls motion in the posterior: and that which operates in thought in the middle region. Hugh traces various stages in psychical life, according as it appears in plants, animals and men. The soul is described rather than defined; in itself it is spirit, but in relation to the body it is soul, and in that relation becomes the possibility of vegetative and sensitive functions. The soul is known through the functions which manifest its presence—that is, through the motions of the body. But these (objective) motions do not prove the reality of the soul: we must begin with self-knowledge, and our knowledge of the souls of others must be constituted in the main by belief. Hugh emphasizes the knowledge of the self as the one certain datum and as the basis of our knowledge of God, thus mediating the transition from Augustine to Descartes ("Cogito, ergo sum.")

While we may assert that the soul *is*, it is necessary to explain more fully the exact nature of its being. All that changes has some share in being, for the very continuity of change implies being continuously in changes. In other words, change requires for its basis a permanent reality, which (after Augustine) is declared to be God. God alone

is the one self-contained Being : the soul is not such a being for it has a definite beginning, is allied to the changing body, and in its activities exhibits changes. But these changes, from ignorance to knowledge, from pain to pleasure, are changes which it knows : and since it knows them it must be a permanent substratum of all changes. Thus self-consciousness is the evidence for the permanent nature of the soul, and that justifies us in calling it a substance. That the soul is a substance cannot be proved by argument : the ground for that assertion is immediate self-knowledge.

The soul, then, knows itself to be an independent substance distinct from the body. As such it is spirit : all souls are spiritual, but all spirits are not souls ; for spirit is the generic term for the incorporeal, while soul is the special term for a spirit united to a body. As there are pure spirits, so there are spirits that seem to be identical with bodies. The spirits of animals are not distinguishable from their material substratum ; they are merely souls, principles of life, and cannot be truly called spirits : while the souls of men are at once spirits and souls, because they may be separated from the body. This amounts practically to denying that animals really have souls in the ordinary sense, for they lack reason, which is the distinguishing mark of the human soul.

The self-consciousness which proves the being and the spirituality of the soul also proves its simplicity. On this intuitive basis Hugh builds his definition of the soul as substantive, spiritual, simple and immortal. He rejects the doctrine of a spiritual matter, maintains that the soul is indivisibly in every part, and in general restates the principles of the Augustinian doctrine. In all these revivals of the Christian Neoplatonism founded by Augustine the salient feature is the assertion of personality as the central psychological fact.

The pure spiritism of this tradition makes all the more important the question of a relation between soul and body. How can the immaterial non-spatial soul have any relation to the extended material body ? This problem was, as usual, given an extensive significance ; it included the relation of God to the Universe, and the union of the divine and human

natures in God. We pass over those aspects and confine ourselves to the nature of man, a mystery which Hugh thought greater even than that of the Incarnation. Hugh argues the point dialectically: every union of different things implies some degree of similarity or affinity: this is supplied, in the case of soul and body, by the harmony of the body: only when that harmony is realized can the soul be united to the body, and the harmony is then the cause of the union. The explanation was neither original nor satisfactory; it was an echo of Pythagorean doctrine transmitted through Boëthius; it savoured of the old doctrine that like knows like; and it developed automatically into a profitless disquisition on the "number" of the body. The only element of value was the idea that the life of the soul (not the spirit, but the soul) is dependent on the perfection of the organism; pain and death are derangements of the inner harmony which destroy the soul by dissolving the union of spirit and body. We can only say of this theory that it is no worse than the physical theories of intermediation: and that the problem is not as yet much nearer a solution. Hugh really believes in a mysterious unification which depends upon the simplicity of the soul; that simplicity overflows, as it were, into the body and produces a unity of the body as well as a unity of body with soul. This union constitutes the "person" as distinct from either body or soul taken abstractly. Hugh lays emphasis on this idea of the person; but he found no support for his line of thought.

We need not expect from the mystics any serious contribution to the physiology or the psychology of the senses. In these subjects Hugh is content to follow others: the tradition was well defined, and there seemed no need to do more than give the senses a definite place in the general scheme as a means by which the soul is roused to know itself and God. The case is similar with the question of desires: ethical distinctions take the place of psychological analysis and the doctrine of the Fall of Man colours the whole treatment.

The reason and the will are of more than vital interest to Hugh, yet here too the work is more interesting as theology or as literature than as psychology. In the famous

passage of the " three eyes " we reach the central conception of the mystical school. The soul, says Hugh, stands midway between the world outside itself and God within itself. It has an eye by which it sees the outer world, the eye of the flesh ; it has also an eye by which it sees itself, the eye of reason ; it has also an eye by which it sees God and the things that are in God, the eye of contemplation. In the first state of bliss all things were clearly seen, but sin entered in and the eye of contemplation was destroyed, the eye of reason was dimmed, and only the carnal eye remained clear. For that reason men now see the things of this world more clearly than they see the soul or God.

Hugh's description of what is included in the process called reasoning has distinct historical interest because he makes no use of the " active intellect " as we find it among the Arabs and later scholastics. His exposition follows more closely that of Aristotle ; the incentive to reason is furnished by the senses which supply the data ; the forms are received by the soul and the process of reasoning consists in reaching at the meaning which the material thing only symbolizes. Hugh's example explains this. The world of things is a book which the intellect reads : the data of the senses are like the written signs which the mind in a certain way receives ; but the written word is not the real material of thought, for by means of those symbols the intellect reaches the meaning, a spiritual reality which it can take up into itself. The simile was destined to be a standard explanation of the difference between the material object of knowledge and the immaterial content of thought.

Reason as a faculty of knowing is only one aspect of the inner life. If we turn from the outer to the inner we find that the reason has certain qualities which make it significant in a wholly different manner. The knowledge which we have through the senses is an extension of the self ; reason overcomes this tendency to diffusion by restoring unity : where the senses are extensive the reason is intensive. This intensiveness is the real content of the idea of self-consciousness ; the unity of the personal life, not the reduction of all consciousness to a simple point, is what Hugh strives

to explain; the intensive character of reason is really a quality, not another kind of quantity comparable to the plurality of sense.

The goal of reason is to know the self, and therein to know God. The three kinds of activity typified by the "three eyes" are related one to another as stages in the progress to perfect knowledge; the understanding applies itself to the sensuous data, collects itself into a knowledge of its own life, and passes then beyond itself to the knowledge of God. Reason is therefore transcendent in two directions; it transcends itself when it goes out to objects no less than when it goes out toward God. In both cases the transcendence of the act is accompanied by assimilation, so that the soul progresses from state to state, not passing beyond itself actually, but yet always going beyond its present limits to a greater perfection. This temperate mysticism compares favourably with the more elaborate doctrines of "intelligences"; it shows a clear appreciation of the relation between transcendence, as a passage from one state to another, and immanence as the abiding quality of the conscious life; we transcend our limitations most when we are most truly at one with ourselves. The distinction of transcendence and immanence rests upon the distinction of object and state. If we think of objects (things), ourselves and God, we naturally speak of the first and third as being outside us. But all objects as known are assimilated, and the knowledge is not the thing, but the inner state which takes on a quality corresponding to the object. The difference, then, between knowledge of things and knowledge of God is a difference in the quality of the inner states, due to the different conditions which produce them; the objects in the world are the conditions required for the production of sense-knowledge, and they are responsible for the resulting inner state; God is the required condition for knowledge of God, and His perfection is the ground of that perfection which belongs to such knowledge. In describing the states Hugh uses the terms *cogitatio, meditatio* and *contemplatio.* As pure states these are not entirely dependent on the character of the objects; it is possible to contemplate the sensuous objects, and that form of contemplation is

speculatio; but as a rule *contemplatio* is understood to be the activity of the soul in comprehending the supersensuous.

It is important to grasp the immanence ascribed to thought in this doctrine, because mysticism rarely achieves so critical a result. It is more usual to make the goal of mysticism an illumination from without: Hugh abides by the doctrine that the evolution of the intellect explains all its states. It is also more usual to express the goal of mysticism as a feeling which transcends intellect. That is a later form of mysticism: the mysticism of Hugh belongs to that phase of its development which is bound up with the belief in intellect as the supreme form of the conscious life. As a consequence of this, belief and will are made subordinate to intellect. Belief or faith is more than opinion, but it is less than knowledge; it is concerned with things hoped for and not seen, but it vanishes with attainment and intellectual vision: "nam si vides, non est fides." The will is fundamentally a principle of movement; as such it requires an end given by reason; nothing is willed unless it is first known. Even in animals the idea, as sensuous picture of the object, is the root of impulse and the guide of appetite.

This position, though clearly stated, avoids none of the cardinal difficulties which it involves. The theological and ethical interests, so prominent in all the theories that hung upon the Augustinian and Pelagian doctrines, required some decision upon the question of free will. Hugh's position involves the old difficulty of rational determination: the reason shows the will what it should choose, and therefore choice is ultimately dependent on the light of reason. The Socratic position that error arises from ignorance is changed by Hugh into the doctrine that error arises from sin; but that amounts ultimately to natural depravity and explains nothing, while it leaves us with the persistent fact that depravity means inability to see rightly the truth that reason would otherwise grasp.

Richard of St. Victor (d. 1173) followed Hugh in the main points of his teaching, but differed in one essential point. While Hugh stated systematically the characteristics of the inner life and so furnished a descriptive psychology, Richard attempted to formulate a science of mysticism.

The experiences of the mystic are not suited for such treatment, and Richard falls at once below the level which Hugh had reached. He begins with a false step when he assigns the knowledge of things temporal to experience, the knowledge of the eternal to reason and belief. This division implies a wrong valuation of experience; it precludes that unity of mind and nature which is the true element in mysticism. Richard is inclined to be extravagant in his description of the mystic state, dwelling on its abstract qualities: *raptus, exultatio, abalienatio mentis* are the terms employed to describe them. The influence of Proclus and pseudo-Dionysius begins to cause excesses of language, while the self-centredness of mysticism begets numerous trivial distinctions, multiplying words unprofitably.

Among the interesting, and not unimportant, documents of this century must be reckoned the correspondence between Isaac of Stella and Alcher of Clairvaux. Isaac was born in England, but his life was passed mainly in France; he appeared there in 1147, became Abbot of Stella in Poitiers at some later date, and died after 1155. Alcher was a scholar at Clairvaux in the days of St. Bernard, and from the way in which Isaac speaks, it has been inferred that Alcher was specially trained in medicine. Both were pious men and had no desire to transgress the limits of their religious dogmas, but none the less there is a distinctive quality about their writing. Alcher appears to have studied the body and so arrived at the point of asking the Abbot of Stella to give him some account of the soul. It was agreed beforehand that the Abbot need not say "what it was before sin, or is in the state of sin, or will be after sin": this probably saved much time and induced the Abbot to begin at once on the main points of psychology. First he explains that the soul is a unity: it has no quantity because it is not body, that is to say, not being extended, it cannot be divided into parts. But it has quality, and may be said to have "parts" in the sense that there are distinctions within its unity. The "parts" in question are really powers (*vires*) or modes of action, namely *ingenium, ratio, memoria*. The soul (*anima*) is the totality presupposed by the powers; we say the reason exhibits wisdom (*ratio sapit*) but the soul is the

life (*anima vivit*). Hence it is more correct to speak of "the rational soul" than to speak of "reason," as though reason was something other than the soul.

With this introduction Isaac proceeds to details. The first classification of powers is made under the heads *rationalis*, *concupiscibilis*, *irascibilis*. The two latter are the origin of all the "affections." Concupiscence is the basis of inclination, sensuous pleasure, enjoyment and love; irascibility gives rise to envy, anger, indignation, hatred. The subject is then dropped and the writer passes on to the cognitive power. From this arises sense (*sensus*), which, we are told, is various and may have reference to past, present or future time. *Ingenium* is the name for the activity (*vis*, *intentio*) which enables the mind to extend itself and acquire knowledge; reason judges what is acquired, memory stores up the things on which judgment has been exercised. Isaac thinks his medical friend will appreciate a simile, so he enlarges on this point: reason is applied to things present and, as it were in the mouth of the heart, masticates what the teeth of *ingenium* are grasping, or chews the cud which the belly of memory presents a second time! He adds the illuminating comment that not everything known is continually present, nor does all that a man knows remain at all times directly present to the eye of the mind ("nec versatur semper in intuitu scientis omne quod scitur"). Here Isaac introduces Aristotle's distinction of ἔχειν and θεωρεῖν; he should have due credit for appreciating the point and expressing it in such clear, concise, intelligent language. From this point a mystical element begins to reveal itself. The three fundamental natures are those of body, soul and God. The soul is the intermediate nature, as including sense and intelligence, the former corporeal, the latter incorporeal. Isaac thinks that the body involves sensibility, which is corporeal without being actually *corpus*; similarly, the soul has imagination, which is intelligence clothed in sense. The implied problem of the relation between image and idea is not explicitly formulated; the writer diverges from the psychological point to construct a rather artificial bridge over the gap between body and mind. The logical sequence (sense,

imagination, memory, intellect) is treated as an ascending scale, and each to some extent overlaps the other. Neither sense nor imagination is identical with the physical organs or their movements: they are in some degree spiritual, though never manifested without corporeal changes. Similarly, all affections arise in the soul but are manifested in the body.

While this theory does not go very far, it exhibits clearly the increasing recognition of physical or corporeal factors in the total spiritual life of man. For that reason it has a distinct historical interest as a proof of the new direction which was taken at this time by speculative thought. Alcher (*De Spiritu et Anima*) shows the same tendency, which is in fact a beginning of that movement towards a more complete view of human psychology which the acquisition of Arab teachings was destined soon to accelerate.

CHAPTER III

THE THIRTEENTH CENTURY

§ 1. THE rapid development which took place in the thirteenth century was due, in the first place, to certain facts in the political history of the period. After 1085 A.D. Toledo, which had been in the hands of the Arabs since 714 A.D., became part of the kingdom of Castile and the seat of an archbishopric. Here the knowledge of traditions and of languages flourished under a most favourable complex of conditions, fostered by Raymund, Archbishop of Toledo (d. 1150). To this centre came all the great translators of the period, Michael the Scot, Hermann the Dalmatian, Gerard of Cremona, Alfred the Englishman and others. Among the works which affect our subject first comes the Latin version of Avicenna's commentary on the *De Anima* made by Gondisalvi (Gundissalinus), Archdeacon of Segovia about 1150 A.D. Later (about 1220 A.D.) Michael produced translations of the commentaries of Ibn Roshd on works of Aristotle, including the *De Anima*, followed by parts at least of the *Historia Animalium*. In addition to these and other translations, which together represented the major part of Aristotle's works, there were some original works. Gundissalinus wrote *De Immortalitate Animæ* and *De Anima*, works which continued to combine Aristotelian and Neo-platonic doctrines. Alfred of Sereshal (d. 1217 A.D.) was the author of a brief treatise, *De Motu Cordis*, which presents mainly Arabic doctrines, places the soul in the heart, and inclines to give more importance to physiological considerations than was usual at that time, for which reason he is described as introducing an empirical element into the speculations of this period.

Meanwhile Constantinople, captured by the Latins

in 1204 A.D., became an independent source of material. Comparative ignorance of the Greek language rendered this opportunity less valuable than it might otherwise have been, but the Latin versions made from the Greek texts had the merit of conflicting with the Arabic transfigurations of the original doctrines, and the progress of the Schoolmen was undoubtedly assisted by the new material. The writers who now figure as leaders of thought show considerable power of assimilating and organizing the growing mass of material: encyclopædic works became the fashion, and testify to the fact that their authors had resources hitherto unequalled.

Among those who profited by the new source was William of Auvergne (d. 1249). His treatise *De Animæ Immortalitate* was modelled upon that of Gundissalinus, but in his *De Anima* other influences are seen at work and may well be due to Greek sources. Of the *De Anima* it has been said that the problem of the origin of our ideas "is here plainly raised for the first time in scholasticism" (De Wulf, 274). The treatment of the subject is not very enlightening; it consists of Aristotelianism misunderstood and Augustinism. The senses are said to receive the forms of sensible things, but these forms are taken to be purely physical impressions; so that sensation is merely a physical event serving as the occasion for an intellectual activity. This doctrine of spiritual activity was no longer worth producing, and William made better use of his Augustine when he rejected, on the basis of the soul's simplicity, the Arabian doctrine of the active intellect; he is content to say that the intellect belongs to the soul and operates by means of the body as its necessary condition; he does not introduce a second superhuman power to make the intellect intelligent. William also follows Augustine in laying great stress on consciousness as the source of immediate self-evident truths: he clearly thinks that axioms and first principles are guaranteed by their clearness and are self-revelations of consciousness: while the highest ultimate principles are known through a special illumination and seen in God.

§ 2. One of the great masters of the thirteenth century was the Englishman, Alexander, called after his birthplace

Alexander of Hales (now Hailes, Gloucestershire). He lived till 1245, a Franciscan teacher, honoured long after for his extensive learning. His work, *Universæ Theologiæ Summa*, has the encyclopædic character common to all writings of this class; it comprises the Creator and His works, including in due course man, body and soul. His work has some importance historically as the chief point at which the Christian tradition is modified by Arab influences.

Alexander bases his doctrine on the idea of a substantial incorporeal soul, supporting the view of Augustine against the Aristotelian idea of "Form." The soul as substance is distinct from the substance of the body; the two coexist with apparent unity, though the soul is specifically that which moves the body (Plato).[1] At this period two extreme doctrines were under discussion, the materialism of the (heretical) atomists (David of Dinant and others) and the pantheistic spiritualism of Avicebron. Alexander rejects the idea that the soul arises from primitive matter, agrees with the Arabian doctrine of spirit, but refuses to identify that spiritual ground of all existence with God. In this way Alexander evolved the idea of a spiritual matter (*materia intellectualis*). While the argument is curious, the result is good; the soul is thus made an independent reality, neither confounded with body nor regarded as superhuman; in other words, beyond its being "poured into" the body ("anima creando infunditur") there is nothing unique in the soul except its immediate characteristics. Matter is distinguished by its extension: the spiritual has no such mark. In this position lies the beginning of the later scholastic development, its maintenance of spirituality along with independent existence.

Following the Aristotelian scheme, Alexander proceeds from substance to properties. The soul is simple and indivisible. The vegetative and sensuous powers do not precede the rational soul, as some argue from the study of embryos ("quod obicitur de embrione"), but the soul itself prepares the corporeal powers and completes them; hence if those instruments are again destroyed, the soul still keeps its

[1] Expressed by Alexander thus: "In homine est principium movendi secundum voluntatem non dependens a motu cœli" (Endres, 205).

powers of sensation and imagination (namely, after death). The relation of these powers to the soul—that is to say, the relation of the plurality of functions to the unity of substance—was a standing topic and comes in due order into Alexander's scheme of exposition. The problem was confused at this stage by the fact that differences were deduced both from the nature of the acts and from the organs. So long as the rational, sensitive and vegetative "parts" of the soul were localized in the head, the heart and the lower organs respectively (after Plato), there was sufficient reason for the distinctions. But Aristotle distinguished functions rather than localities; and such differences as might be said to exist in thinking and willing could not be brought under the other principle of local distinction. Avicenna and the author of the *De Motu Cordis* led Alexander to emphasize the physiological side of the question, the problem of vitality and vital operations. But he cannot admit that the soul is related to psychic functions as vitality is to vital functions; this (nominalistic) view was not in favour at this date, and Alexander maintains confusedly that the soul is distinct from its powers.

From this point Alexander goes on to discuss the senses and then the reason. The majority of this part is a discussion of earlier doctrines, guided by a desire to unify Augustinian and Peripatetic theories. The distinctively theological bias of Alexander's work is shown in three main points, the idea of *sensualitas*, the form in which freedom of the will is stated, and the emphasis on synderesis. The first is a term for all the lower activities, both sense and desire; the term *sensualitas* is meant to indicate that these all belong to the body as infected by original sin. Free will is for Alexander a faculty distinct from will and intellect; it is an absolute power of determination. Synderesis is a term that begins from Alexander to take a place of importance in mediæval systems; its meaning has been stated above (p. 78).

The historical significance of Alexander's formulation of doctrine is due to his place in the development of scholastic thought. Equipped with considerable knowledge of the ancients and the later Arabians, he presents a union of

doctrines whose incompatibility he does not seem to recognize. Where practical and religious interests guide his thought he is authoritative; for the rest, his compilation is crude and serves primarily as a starting-point for later dissensions.

§ 3. The great names of Albertus Magnus and Thomas Aquinas bring us to the climax of the thirteenth century. These two created what we may call the scholastic synthesis. The time had come when it was possible, and very necessary, to create an authoritative body of doctrine. The process was mainly one of selection and combination; the greatness of these men was shown in their grasp of the possible solutions of the established problems and their power of systematic presentation. In the particular sphere of psychology they cannot occupy any very conspicuous place for this very reason; we have already stated the doctrines as they arose, and a complete description of these systems would involve wearisome repetition. Moreover, the unity of these systems is mainly due to the recovery of Aristotelian theories, now being rapidly acquired from Greek and Arab sources; so that the dominant feature, in psychology, is the Peripatetic character of the conclusions.

Albert led the way with a massive collection of doctrines that covered all the ground but fell short of the Thomistic system in respect of consistency. The comprehensive monograph of Schneider amply demonstrates his assertion that Albert really failed to produce any definite system; his views are both Peripatetic and Neoplatonic in the old confusing way, and even on the same topic he frequently arrives at contradictory conclusions. A brief epitome will show how matters stood.

The soul is defined as both form and substance of the body. The idea of Form is drawn from Aristotle, but the mediævalists believed that a form is dependent on its substance and is annihilated when the substance is resolved into its elements; in other words, that a form is an attribute. Consequently, to save the soul from such dependence, the scholastic doctrine makes it a substance that gives form. As such the soul is, for immediate observation, the organic principle of life which cannot be divided from the organism;

but it is also at the same time separable as a substance, and Aristotle gives place to Plato when we pass from the organism to the soul in and for itself. Meanwhile this much is gained: the soul and body, in other words the organism may be taken as the object of independent inquiry. In this way philosophy and religion acquire independent spheres or subject-matters; and this is important, because the sphere of philosophy is thus segregated and comes, in practice, to be a true science distinguishable from theology.

The soul is united to body, not to matter. It follows that a process of formation goes on prior to the union of the soul with the body. This process is the work of the *vis formativa*, a natural power which controls the evolution of the material body up to the point at which the soul is united to it. Here, therefore, there is a duality; the soul is a rational principle coexisting with the vital principle; they limit each other in so far as the soul does not cause the evolution of the bodily form, and the *vis formativa* does not evolve into a rational principle. Vital functions and intellectual functions are therefore coexistent but not unified; the animal organism is the prepared instrument which the soul uses; it is the medium by which the soul completes its activities, as the musician completes his activities by means of the musical instrument.

Some interest attaches to this position on account of its partial simplification of earlier views. Albert retains two terms, body (or *forma corporeitatis*) and soul; but he has no intermediaries between these. He also rejects plurality of souls and reduces all the "parts" of the soul to aspects of its activity. The soul has degrees, namely vegetative, sensitive and intellectual. This repeats the familiar classification of Aristotle, with some elaborations derived from Arab writings. The vegetative soul is the form of the physiological life; it includes as its faculties the nutritive, augmentative and generative powers. The nutritive power acts by means of natural heat (*calor naturalis*), which includes *calor digestivus*, *calor cœlestis* and *calor animalis*. The first of these is the heat in the organism; the second is the heat contained in the things assimilated; while the third is in the soul, being vital heat. The augmentative

power is the power of growth. The generative power is put last as being the final cause of the others; the end of nature is to preserve and multiply its types.

Upon the sensitive degree of the soul we hear nothing that is new. The outer senses are the five special senses and the common sense. It was not usual to reckon the common sense among the outer senses; but Albert does so because he regards it as their complement. The object of the senses acts upon the subject so as to produce an image (*forma sensibilis*); this is completed by an act of the soul which grasps the content of the presentation. While the *forma* is the image of the object, this mental grasp of the thing is an *intentio*. Albert here unites the language of Aristotle with the meaning of Augustine; in Aristotle the sense is passive, while in Augustine it is an activity of the soul; Albert has grasped the point that an event in the organism, such as the acquisition of sense-images, must be made the object of an activity, if sensation is to result. Thus, a noise produces an organic change which is the sensible form; if this is followed by a conscious grasp of the image, it becomes a sound.

The analysis here reproduced had been made before Albert's time and had given rise to a characteristic chain of ideas. Having introduced the image as sensible form, some thought it necessary to introduce another factor to unite the image and the subjective action, the idea. The more metaphysical theorists made light the intermediate factor, believing that the soul was enveloped in a body of light, and that this light mediated between the physical and the psychic events. That view Albert rejects as nonsense. A second class of theorists ascribed perception to another agency in the soul itself, multiplying powers needlessly. Albert believes that the facts are adequately explained by the action of the object on the subject, without further interposition. This is one of the instances in which he simplifies current theories.

The common sense, described after the manner of Aristotle, is concerned with the common sensibles; it also discriminates, and is the agency by which we know that we have sensations (consciousness of self). The vexed question of the relation

between special and common sensibles is treated with some originality. The point in discussion was the union of the common elements with the special data; that is to say, the way in which space, time, figure, motion and rest are actually given in relation with a sensation of colour, sound, taste, smell or touch. Albert believes in a kind of reciprocal action and consequent union. The special object is perceived first by the special sense and then by the common sense; the common sensible is first perceived by the common sense and then by the special sense. For example, a coloured object is so perceived that the colour is first the object of the sense of sight; then the common sense perceives the colour to be extended: thus the final object is both a colour extended and an extension coloured, which ultimately comes to the same thing as a synthesis of matter and form in perception. On the other topics (discrimination, consciousness) nothing new is suggested.

Imagination in the narrow sense is the storehouse of forms (*thesaurus formarum*) and is also called *vis formalis*. The term Fancy (Phantasia) is used as the equivalent of *imaginatio*, and also in a wider sense to include reception of forms (*imaginatio*), production of forms (Fancy) and valuation of forms (*vis æstimativa*), or instinctive valuation of particulars as objects of desire or aversion.

Memory is not the storehouse of forms but of intentions. Forms, as we saw above, are images received from objects; intentions are activities directed to those forms. If, as Albert says, memory is the storehouse of intentions, it follows that memory is the preservation in consciousness of previous activities of conscious life. This is the Augustinian view. Albert actually accepts both the Aristotelian definition, that memory is an act of sensuous imagination accompanied by a sense of time, and the Augustinian idea that it is the equivalent of continuous consciousness. From both of these he distinguishes Reminiscence as voluntary recall involving the intellect. While memory is the reproduction of a particular sensuous fact, qualified by the sense of time, reminiscence involves the active reproduction of another idea related to a given idea; this is taken to involve a common concept, related to the separate ideas

as genus to its species. Since the generic concept is peculiar to man and involves intellect, reminiscence is an intellectual process and is not reached by animals.

The intellectual powers are divided primarily with reference to the difference of their objects. That which deals with probable truth is opinion ; this is inserted as an intermediate power, in the manner of Plato and Aristotle.

The Reason (*Intellectus*) is the faculty that grasps the supersensuous. Here the important question in the thirteenth century was that of the *intellectus possibilis* and *intellectus agens*. Against Averroism Albert maintains that the *intellectus agens* is not a principle of knowledge outside and above the individual ; he goes far enough to make all knowledge an immanent activity. But he will go no further. The soul cannot attain the highest truths without a separate, non-sensuous faculty which actualizes the passive intellect, as light makes actual the colours potentially contained in things. Albert thus retains a dualism in the sphere of the intellect. The process is conceived as follows: the data of the senses are illuminated by the active intellect, which thus reveals the universal element latent in them; the potential intellect, by abstracting the revealed forms, gradually becomes actual—in other words, the actual body of our knowledge is a growing system which is accompanied, psychologically, by a growing clearness in our ideas. This experience of the inner clearness and joy of intellectual satisfaction is the one sure feature in this maze of explanation.

For the rest, Albert maintains the traditional distinction between Reason and Understanding (*Intellectus* and *Ratio*) which had come down from Plato through Aristotle. He also recognizes the active elements in the life of the soul, the *vis concupiscibilis* (ἐπιθυμία) and the *vis irascibilis* (θυμός). In this direction nothing of importance was achieved: the treatment of desire and will remained merely subordinate to that of the intellect, even though Augustine's influence tended to correct the balance of interest.

§ 4. The account given above of Albert the Great can be taken as applying in the main to Thomas Aquinas

(1225–1274). The relative merits of these two writers have been variously estimated, but no one will disagree with the general statement that Albert excelled in scientific matters,. while Thomas surpassed him in subtlety and systematization. So far as psychology is concerned, we cannot find much ground for the superiority usually attributed to Thomas : the ideas of the master overshadow the technical subtleties of the pupil. Their agreement extends so far that we may here confine ourselves to two principal objects : the first will be a general statement of the scholastic doctrine, the second, an indication of the last touches given to it by Thomas and of their significance.

The most obvious feature of the whole movement called scholasticism is the steady restoration of Aristotle's doctrine. After the earlier Platonism, Arabian teachings begin to occupy the scholastics. The task of assimilating Arabian psychology proves to be ultimately the task of annihilating the Arabian doctrine of the intellect. This step is definitely progressive because it ends with a clear assertion of the immanence of all psychic powers in the individual. Intellect is defined by Thomas as the faculty of intellectual comprehension ; the importance of the definition is in the implied rejection of a universal, superhuman intelligence in which all human beings partake. From the given definition it follows that intellect is individual ; each person's intellect is no more than the individual's actual intelligence.

After this cosmic dualism is cleared away there remains the dualism within the individual. The Aristotelian treatment of the soul is not satisfactory to the Christian philosopher. For him the soul must be both separable from the body and immortal. The proof of these points is not a part of psychology ; the assertion of them affects a psychological theory in the consequent difficulty of uniting that kind of soul to a body. The difficulty is obscured by speaking of the soul as the form of the body, with the added qualification that the form is, in this case, substantial. That is the point at which the theologian forsakes Aristotle.

In reality the point is not of much importance. So long as the theology is kept out of the psychology, there is no

reason why the analysis of consciousness should be vitiated by such irrelevant considerations. But the method of psychology is not conceived by Thomas with clearness; the true analytic method is mixed with the synthetic method of Plato, and, in spite of all assurances that the real unity of man is what experience reveals, we ultimately come to the question, How is the unity possible? For the powers of the senses and of imagination are organic, but the intellectual powers are not organic; there is therefore a dualism to be overcome, and some explanation must be given of the way in which the sense-experience is taken up into the higher work of intellect. Before attacking that point some preparatory remarks may be helpful.

Scholastic psychology, as we see it in the works of Thomas Aquinas, is rightly called spiritualistic. The nature of the soul is described in harmony with revelation; from this is deduced the nature of consciousness. The example set by Augustine was followed, and the testimony of consciousness to its own nature was accepted as indisputable. The knowledge of self is therefore primarily intuitive; the soul knows itself to that extent, but no further. The essence of the soul is not movement but knowledge; it cannot produce knowledge except in the way of reaction to a stimulus. The object known acts upon the sense and produces an organic change; upon this there follows consciousness of that change; the activities of the different sense-organs are united in the central "common sense," where there is also recognition of knowledge as distinctively one's own knowledge. In spite of the antiquated formulæ in which the writer expresses these ideas, it is clear that the description makes room for a physiological process, a psychological event, and a distinct process of a higher order; these are, in fact, the nerve-excitation, the sense-perception and consequent apperception. The common sense also achieves a synthesis of all the elements.

In the days of Thomas Aquinas it was already obvious that the weak point in the constructive psychology of the age was the relation between the senses and the other functions of the soul. Thomas made a bold attack on the problem, but only succeeded in giving a description of possible stages

in the transition from "outer" to "inner." The material change (physical and physiological action of the object) is followed by a spiritual change (*immutatio spiritualis*) which is called the *species sensibilis*. This is an inner change coordinated with the sense-impression and constituting the significance for consciousness of what is (externally considered) an impression. This was no more than a reproduction of Aristotle's formulæ about impression (τύπωσις) and qualitative change (ἀλλοίωσις [1]), and may be regarded as originally an unobjectionable way of describing the genesis of some contents of the mind. But the distinction thus made between *species impressa* (stimuli) and *species expressa* (reaction and consequent apprehension) was destined to harden into a system of different entities and give rise to endless disputes which presupposed that the dual function here described was an actual meeting and fusion of "images."

The scholastics refuse to identify mind and matter. St. Thomas rejects all forms of materialism, including the mediating views of the soul as arising from the mixture or harmony of elements in the body (Empedocles, Galen). He argues that the intellect is not a form of sensation. The rational principle is therefore in no sense part of the physical organism, though soul and body when united form the actual human organism. On this basis we can expect no development of the physiological view of the senses; that was a task for which Thomas was not equipped by nature or training. On the other hand, having emphasized the difference between mind and matter, he treats the processes of sensation, imagination and thought with considerable acuteness. In the main Aristotle is reproduced; the outer senses are described; then the inner senses, namely the common sense,[2] memory, instinctive valuation (*vis æstimativa*) and imagination. At this point there is a change in the nature of mental processes; the transition from images to concepts is a transition from the sphere of sense to the sphere of intellect. The dualism of the system obtrudes

[1] See *H. P.* i. p. 108.

[2] Thomas here diverges from Albert by transferring the *sensus communis* from the outer to the inner senses.

itself at this point. There can be no sensation without an object; also, there can be no thought without a content; but how the sensuous forms become contents of thought we are nowhere told. Scholasticism condemns by anticipation the doctrine of empiricism, asserting that sense never becomes intellect; it looks forward to the doctrine of Kant in its twofold assertion that sensation without intellect is never universal, and intellect is an activity wholly distinct from sensation. St. Thomas is sustained, in the last resort, by his faith; the problem is to be regarded as a mystery, and the power of God as Creator of all things can be the only explanation of the ultimate unity. This belief accounts for several bold assertions. Soul is said to be united immediately to body; there are no intermediaries, such as the *spiritus physicus*. The intellect is declared to have the power of reaching, through a process of abstraction, the essence of objects, which it then universalizes: a view which clearly implies that intellect and intelligible essences are created for each other by God.

A complete account of Thomas's views could only be given at the cost of repeating most of what has been already ascribed to Albert. The reader is asked to remember what has gone before and to reflect for a moment on what is to be developed later. We have here already the cleft between mind and matter which Descartes will be found developing later; we have, too, the Cartesian principle of union through God; and, at the same time, there is more than one suggestion of that later Aristotelianism which Kant so ingeniously elaborated. These points will be seen arising as we follow out the later views of cognition. Here we shall diverge into some less recondite topics and discuss a few subjects in which the mediævalists showed another side of their manifold activities.

§ 5. Among the subjects discussed by mediæval writers Love always occupies a prominent place. In formal expositions it takes an important position as the generic term for a class of emotions: it comes under discussion at other times on account of its peculiar position as the link between man and God. This latter phase is the one we now propose

to consider, for it led to several interesting problems. The mediæval thinkers did not fail to notice that love of God is usually considered distinct from self-love; but it is more easy to accept the distinction than to justify it. The importance of the discussion is due to the fact that it deals with a very large problem, namely whether there are distinctions in emotions corresponding to distinctions in the objects of emotions. As God is transcendent, it was tacitly assumed that the love of God transcends human passions; in other words, love which has a transcendent object is not itself pathological. Here, then, we find the Kantian distinction of pathological and non-pathological affections formulated and discussed. The subject bristled with points on which it was possible to quote personal experiences and so, indirectly, provide data for psychological doctrines.

The problem was most clearly seen in the thirteenth century, but the distinctions came from earlier sources. Augustine opposed *caritas* to *cupiditas*, following the Stoic method of classification which separated right from wrong emotions as though they were different in nature as well as object. For Augustine *caritas* is *amor rectus*; *cupiditas* is *amor curvus*. This view tended to produce a dualism and favoured the view that love of God was the gift of grace, wholly distinct from natural liking. Against this view it was possible to quote Aristotle's saying that sentiments of love which refer to another have come from those which refer to oneself.[1] On this basis affections spring from one source, the natural tendencies of the creature; and the Aristotelians were driven to reconcile this with the experience of self-negation as described by the mystics.

The Aristotelian position has been called the physical or naturalistic doctrine[2] in distinction from the *ecstatic* view, which implies a transcendence of one's natural self in and through the love of another.

The ecstatic view may be taken first; it is the more simple doctrine and came earlier. Its cardinal points are that love implies an object other than oneself; that, as a consequence, union with the object of love is abandonment of the self, self-annihilation. This view is not capable of

[1] *Ethics*, ix. 4. [2] *v.* Rousselot, quoted in note.

systematic development; it can be expressed only in the language of immediate experience, and is found chiefly in sermons, exhortations and meditations. The Songs of Solomon furnished a type of self-expression upon which the ecstatic writers meditated and commented. Love, for them, is irresistible; it annihilates all other powers, overcoming reason especially; it is a languor and weakness, and comparable with death by reason of the wounds it inflicts. The language betrays the character of the emotions, significantly in harmony with the theme of the Canticles; the contemporary who saw in the work of William of St. Thierry [1] the antithesis of Ovid's *Ars Amoris* doubtless had good reason for the association of his ideas.

The basis of the ecstatic doctrine of Love is the idea of an isolated personality. The individual is regarded as external to God and requiring to go out of himself in order to be wholly with God. This was not a new idea; but its revival marks a new influence in the spiritual environment of the writers. The secluded life of monastery and convent fostered an inner desire of self-abandonment to counteract the consciousness of isolation. The true expression of this temper of mind is found in the lives of the saints; the great preachers are only the more articulate members of a community which includes all who, for various reasons, have developed the spiritual life (in this narrow sense), and their utterances must be supplemented from the whole literature of confessions. The vague generalizations which assume that external conditions account for all experiences cannot be sustained; it is irrational to talk as if the existence of monasteries could produce types of mind; only the meagreness of the material could account for such a theory when history shows that similar types [2] exist at all times and that the opposite temper often developed under identical conditions. But if the accidents of place and time do not explain mental types, a large concession must be made to environment in another sense, to the atmosphere of each age and to the ideas which are imparted by one generation to another. Dealing with the spirit of the ages broadly, we may recognize

[1] Rousselot, p. 37.

[2] In eighteenth-century diaries, e.g. See Dessoir (1).

that a tendency to believe strongly in God, in supernatural agencies generally, and in spirits of the air or the earth, will be more developed at one time than another; and, so far, we may find in the early Middle Ages some reasons for the emergence of mental types which, if not unique, are very exceptional. The lives belong to this period, but the study of them from a psychological standpoint belongs to a later period and must be considered when we come to that part of our history. Meanwhile, so far as theory is concerned, the trend is the other way; the ecstatic mode of thought evolves no theory, while the physical doctrine of love passes over that type of experience and treats the question dialectically.

The point at issue is, Do we in loving God love ourselves, or something not ourselves? St. Thomas deals with the question squarely, and, of course, skilfully. He adopts the position that love is always love of oneself; he asks, in so many words, the question, Does the created spirit naturally love God more than itself? The answer is that it does, but the answer is qualified by an analysis of the terms. It is to be assumed that by God is meant the Supreme Good; toward that Good all created things tend by nature and only diverge through depravity, which is in itself unnatural. This point was as old as Plato, and Thomas is well aware that it cannot be merely quoted; it must be explained if it is to be an effective weapon. The explanation is subtle. The object of love is really one with that which loves; in that sense the creature always loves itself: but it is not right to isolate [1] either the self as a separate individual or the object as a separate thing; it is the whole self that is loved, and the true object of love is the counterpart of the whole self.

In spite of its apparent formalism this is a penetrating criticism of ordinary views on the subject. The problem of disinterested sentiments arises from the persistent tendency to think of the object as something distinct from the subject, so that love implies the negation and not the fulfilment of the self. Thomas sees that this is a fallacy due to the fact that such theories neglect the idea of the larger self

[1] Rousselot, p. 31: "Il detruisait l'illusion de l'individu clos."

which continually presents itself as the object of desires. In spite of his naturalistic basis, Thomas does not give up the idealistic element which seemed to be peculiar to the ecstatic doctrines. Expressed in a later terminology, his view amounts to the assertion that natural emotions, rooted in self-love, take on the character of the object in which the individual realizes that self. Whether it is an external object, such as the particular things that are desired: or a larger whole, such as the race; or that most comprehensive totality, God—in all cases alike the lover and the loved are a unity, and to love the object more than oneself is only to prefer the whole to the part.

Thomas was largely concerned with the Aristotelian view of friendship, and this source leads him to convert his position into a doctrine of social psychology. The love of God is distinct from egoistic feeling because it is a feeling for that which is more than self; it is, in fact, a feeling for the solidarity of life. In some sense all created things have this feeling; the animal that fosters and protects its young acts through a feeling that is not egoistic; but animals are not conscious of the difference between whole and part, they subserve the greater cause of their race without defining to themselves this devotion: men realize the distinction, and therefore seem to be self-sacrificing when they give up an immediate for a greater good. But this is really an illusion; the whole transcends the part qualitatively, not quantitatively: the hand that shields the eye from a blow suffers for itself, not for the eye; as the organism transcends each part, so God transcends each individual, not as another unit but as the ground of all being. To love God, therefore, is to love oneself, but it is not egoism.

St. Thomas understands the nature of society in its psychological bearing. This is not to be wondered at, seeing that he followed so great a leader as Aristotle. It is, however, worth notice that the scholastic teacher clearly restates that idea of natural unity which later writers failed to grasp, so that it reappeared as a discovery in the eighteenth century. The love of God is the beginning and the end of *caritas*; for God is the totality of which we are parts. But the other parts include our fellow-men, and in desiring

the true good we desire also their good; so that benevolence and not egoism is the real, the natural character of man. In this way Thomas restates the Greek view that there is a fundamental sense of kinship; but the restatement has a vicious tendency to make this a kinship of thought and purpose—in other words, to make it an intellectual affair. This is undoubtedly an error; while the intellectual life of man is no less social in character than his feelings, it is exactly in the intellectual sphere that the consciousness of antagonism arises. Thomas does not avoid this by merely relegating the unsocial types to the category of the depraved.

CHAPTER IV

FROM THE THIRTEENTH TO THE SIXTEENTH CENTURY

§ 1. THE thirteenth century appears at first sight to have been dominated entirely by traditionalism. The contemporaries of Thomas Aquinas lived in the shadow of the great monument which he reared, and may be excused for having felt that the last stone had now been added to the temple of Knowledge. Yet, on closer inspection, the system of the Dominicans is seen to be the expression of thought in one only of its possible directions. Its perfection in thought and expression marks its maturity, but maturity of this kind is inevitably accompanied by a loss of vitality, and in proportion as it becomes an object of veneration it ceases to be a power making for progress. While there is nothing in the succeeding two centuries which can rival the massiveness of the work done by Albert and Thomas, there is much that deserves to be noticed if we wish to understand the steps by which the mediæval gave way to the modern spirit. Though systems may be finite and complete, the life of thought out of which they spring continues uninterruptedly its everlasting process, and mankind, passing to a new state imperceptibly, finds after a time that it has reached a point at which reflective thought demands new formulæ. The historian must not neglect the tendencies which occupy such intervals. Without pretending that any striking contributions were made during these centuries to a science of the mind, we shall indicate the character of the main tendencies and note the important figures which fill the interval from 1275 to 1500 A.D.

During the first three-quarters of the thirteenth century scholarship was estimated more highly than originality.

The work of interpreting Aristotle absorbed the energies of the great writers, and for a time little or no attention was paid to nature. Here was a flaw which gave an opportunity for both criticism and reconstruction. The times were not favourable to either procedure, but efforts were made in both directions. The problems of mind and of matter could be regarded as problems of nature, and an opposition to traditionalism naturally presents itself as an appeal to the two great sources of knowledge, experience and experiment. From this point of view mysticism and natural science may be regarded as aspects of one tendency, for mysticism is based on the idea of experience, and science on the idea of experiment. Mysticism is represented in various degrees by Bonaventura, Gerson and Eckhart; Roger Bacon and Witelo are most prominent in the sphere of science: while Duns Scotus, Ockham and others represent the development of thought in more strictly theological circles.

The function of mysticism in the mediæval period can only be understood by reference to the dominant intellectualism. The prevalence of Aristotelianism tended to exclude from academic expositions any real analysis of the affective states. In relation to the dogmatic theology of the later Middle Ages, mysticism appears as a more or less irregular offshoot; it allies itself to systematic thought, but always with an inclination to emphasize aspects of life which the systematic thinkers treated lightly. In the thirteenth century there was already a line of demarcation between learning and piety; and the pietists or mystics were strong enough to express their views adequately. In this class of work we find some valuable attempts at an introspective study of the soul and the first beginnings of a deeper psychology of emotions, principally religious emotions. At first this is hopelessly confused in method. The writers begin without properly understanding that in discussing such a topic as the love of God they must consider the emotional state and not its object. The theological bent of the writer often obscures the real value of his introspective analysis, because his language makes no proper distinction between the psychological element of feeling and

such other questions as the duty of cultivating the feeling. Owing to this want of clearness a large part of the work done is irrelevant to psychology and can only be treated by drastic expurgation.

§ 2. In 1253 John of Rochelle resigned his chair in the University of Paris. He had been a pupil of Alexander of Hales and acquired from his master a taste for science which was shown, in his treatise *De Anima*, by the unusual amount of attention paid to physiology. No successor could be found to carry on his work until finally John Fidanza was elected, henceforth to be known as Bonaventura. He continued to teach for many years, became General of his order, and died in the same year as Thomas Aquinas (1274). Bonaventura was a Franciscan, and therefore belonged to a society whose traditions were primarily those of prayer and preaching. He was known as the Doctor Devotus, later as Doctor Seraphicus, and his spirit was before all things devout.

It is not so much the philosophical doctrine as the spirit of the age that we look for in the work of Bonaventura. The influence of the schools can easily be detected. Bonaventura was fully equipped with the learning of his day; but there is clearly another factor at work in the shaping of his interests. St. Francis of Assisi died when Bonaventura was five years old (1226). That was the period which produced the *Roman de la Rose*; before the close of the century both Germany and England had developed the use of the vernacular tongue; Dante belonged to its later years; in art, literature and science there was new life in abundance. It seems almost a law of nature that under such circumstances there should be a tendency among reflective minds to distrust schemes and formulæ: the stir and change of the world's activities enter into the scholar's conception of man's nature.

In detail Bonaventura clung to the traditions, but even so there was a choice of opposites. The Victorines had already laid the basis of a doctrine widely different from the Dominican systems. Bonaventura has not much to add to the work of Hugh of St. Victor, and may be regarded as a

faithful follower of that Augustinian trend. Here we meet again the *Itinerarium mentis ad Deum* with its various stages and divisions. Here, too, we find the view that theology is practical rather than theoretical, to which the necessary complement is the high valuation of the will. Bonaventura begins in a temperate way the movement toward voluntarism.

Bonaventura's work remained a persistent factor in the thought of the thirteenth and fourteenth centuries. In the main it was no more than a revised Augustinism which gradually tended to reproduce the main points of the Neoplatonic teaching. A century later than Bonaventura, Gerson (1363–1429) vigorously supported the mystical doctrines of this school and gave new strength to the old Neoplatonic view of the inner light. In the meantime the German school of theologians had begun from Eckhart with a strong religious movement that was destined to affect the current of speculative thought in many different ways. Historical research has shown the importance of this somewhat crude expression of feeling not only in the religious life of Germany but also in that philosophic development which begins more formally from Leibniz. Eckhart's mysticism had less of the scholastic affinities that bound Bonaventura to his contemporaries. Though less refined and accurate, it was far more forcible in its expression of the idea of personality as constituted by will and feeling, while its language was free from traditional associations.

The inheritance of thought is inevitably also an inheritance of words. It would be difficult to estimate the amount of influence which is exerted by a well-defined system of terms; but there can be no doubt that Eckhart gained considerable freedom by using the German language. His thought still ran in the well-worn channels of tradition: the Victorines influenced his outlook; his idea of an ultimate unity of thought and will in a supreme state of love was neither wholly new nor wholly unique at the time. Yet to Eckhart belongs the credit of giving the traditions a new value. The word *Gemuth* may be said to mean what Plato meant by θυμός; it is hardly distinguishable from the Neoplatonic κεντρόν, the inmost point of self-conscious unity; it absorbs the function of the spark, *scintilla mentis*,

which had become the key-word of mysticism. Yet it eludes exact equation with any of these terms and creates its own atmosphere, remaining as obvious and yet as indefinable as the term "personality."

We may agree, then, with Siebeck, that Eckhart marks a distinct movement from the scholastic doctrine of faculties toward a more adequate view of feeling. It would be hazardous to ascribe to Eckhart any definite conception of that doctrine of feeling which is associated with the names of Tetens and Kant. It is true that he uses very freely the analogies of sense and dwells on the affinity between religious exaltation and sensuous enjoyment. But such phrases as the biblical exhortation to "taste and see that the Lord is good" were enough to account for this, and what is specifically lacking in Eckhart is any adequate treatment of such psychological truths as might be deduced from these spontaneous utterances. The dominant tendency towards uncritical emotionalism which was the popular side of Eckhart's teaching becomes more marked in his successors, Tauler and Suso, and in his contemporary, Richard Rolle of Hampole.

It is not the business of the historian to offer psychological analyses of the mental states which may be supposed to have prompted an individual's expressions or theories. For this reason we shall not analyse, or reproduce the modern attempts to analyse, the mystic temperament. Matilda of Magdeburg and Theoderic of Freiburg were predecessors of Eckhart, as Richard Rolle was his successor, and all these are important as examples of the mystical temperament: but they are subjects for, rather than authors of, psychological theory. One document, however, seems to throw so much light on the meaning of the mystical term "spark" that it is excusable to quote it here. In the *Life of Catherine of Siena*, a mystic of the fifteenth century, we find a description of inner experience which has been stated thus: "The earliest, and up to the end the most marked and general, of all such unusual impressions appears to have been one connected with the sense of touch—that feeling of mostly interior, but later also of exterior, warmth, indeed often of intense heat and burning,

which comes to her, the first as though sunshine were bathing her within or without, the second sometimes as though a great fire were enveloping her, and sometimes as though a living flame were piercing her within. . . . When specially keen and concentrated, and accompanied by some piercing psycho-spiritual perception, they appear under the terms of 'arrow,' 'wound'; and the perception itself bears then the name of *ray* or *spark* (of divine love)." Whether this condition is to be called a religious emotion or a phase of hysteria does not now concern us. As the fact of hallucination precedes the analysis of its causes and nature, so the fact of such " psycho-spiritual " states must first be described and recorded in order to become objects of later explanations. Catherine's power of introspection seems to have been unusual and her evidence proportionately valuable. Similarly, Catherine testifies frequently that religious emotions gave rise to experiences of taste and smell. " Having on one occasion received the Holy Communion, so much odour and sweetness came to her that she seemed to be in Paradise." [1] Here the terms are not metaphorical: the smell and the taste were actual sensations: and the record of the experience makes intelligible the way in which other, perhaps partly metaphorical, expressions acquired their significance for the devout.

§ 3. The opposition to intellectualism which distinguished Bonaventura and Eckhart appears also in the work of Duns Scotus and William of Ockham. Both of these great schoolmen were British by birth, though, in accordance with the habit of the times, their education was Catholic. New currents of thought were beginning to run in the English Universities. Roger Bacon was drawing attention to the study of nature and the natural sciences, completing in this way the work of men like Grosseteste: Oxford was opposed to the Thomistic doctrine, and its attitude helped to inspire Duns Scotus with a spirit of critical antagonism toward the great Dominican. The centre of academic thought was still in theology, but many divergent interests began at this time to enlarge the views of its exponents. Scotus

[1] Baron F. von Hügel, *The Mystical Element of Religion*, i. 178.

reached Paris in 1304. Eleven years before (1293) Henry of Ghent had died after seventeen years of vigorous and original work. The influence of this teacher as a link between the days of Thomas Aquinas and of Duns Scotus ought not to be overlooked. In the main a follower of Augustine, Henry tended to emphasize the importance of the will and may be counted among the voluntarists. Henry also raised some acute questions about *species*, realizing that knowledge of God and the self could not be mediated by representative images. The doctrine of *species* had degenerated into a theory of images imported from without into the sensorium. In opposing this error Henry was only reinstating the original doctrine, according to which the *species* is not a passively received image of the object but a determination of the sensuous activity. Here we find already begun that struggle over the theory of perception which lasted through the seventeenth and eighteenth centuries. Though Henry made some advance in developing the activism of the Augustinians, he was unable to explain the higher mental activities without a superfluous doctrine of illumination.

The Scotist position is the most complete form of the voluntaristic doctrine. Duns Scotus struck at the root of the whole matter by declaring that the end of all existence is not the speculative knowledge of God, but the personal satisfaction which constitutes unity with God. Faith, then, is not an intellectual but a moral state; it is the possession of a desire which, consciously or unconsciously, moves men toward a natural good. This desire is the moving force at the level of sensation; as will it reappears to be the motive force in the sphere of reason. As desire grows into will, so all experience grows from part to whole. But if there is any real progress in this movement, the end differs from the beginning; the whole is subsequent to, not co-existent with, the parts. If the soul is known immediately, it is known in and by itself, *totaliter*. This Duns Scotus denies; we know ourselves mediately—the soul is not the only cause of knowledge: experience is made by us; for this making objects are needed; the soul co-operates with the objective existence in building up experience.

Here the idea of growth and development is vigorously put forward. The consequences are also seen in part. The process of constructing experience begins from the "clean slate," and is explained in the terms of Aristotle with the addition of that voluntaristic element in Stoicism, the doctrine of assent.[1] At first man has only a confused knowledge of the self; we cannot tell at any one time what will emerge from the depths of consciousness: belief does not require that we should know, but only that we act. Yet this empirical view does not serve Scotus to the end; some things the soul attains which are not given by objects, certain immediate truths which are presented to us by this theory without explanation. The result is again a compromise between pure empiricism and a doctrine of the active intellect.

The treatment of the will as basis of right action is more satisfactory. Scotus makes a genuine attempt to explain the actual relation between knowledge and purpose. The cognitive part comes first; we have the idea before we consciously use it as means to an end. But there are two kinds of thinking (*cogitatio*); first thoughts are merely events, the appearance in the soul of ideas, among which one is clearer than the others. This is the material upon which the will acts; its function is to retain the indistinct thoughts, directing itself to them and controlling their relations to the central power of thought.

At this point Scotus seems to have attained a rather striking view of the problems which now occupy psychologists in the sphere of attention and apperception. He is so far from regarding knowledge as the determining cause of will that he speaks of an *intellectio a voluntate imperata*, not, of course, the *prima cogitatio*, but that which Scotus calls *secunda*. Beneath these thoughts which the will makes clear there may be many indistinct or incompletely actualized thoughts: the will turns to these and exerts itself to raise one of them to clearness. Conversely, with the cessation of the act of will, the idea tends to lapse from distinctness.

While this is a logical and perhaps inevitable outcome

[1] See *H. P.* i. p. 171.

of a consistent voluntarism, it has some claim to be considered original. The method of exposition adopted by Scotus makes the point still more interesting for the historian, since it appears to anticipate in principle the later ideas of a fringe of consciousness. Scotus remarks that in the field of vision there is one point of distinct vision and many indistinct elements: he adds that if this is possible in sensation it is much more possible in the sphere of intellect. Making allowance for some obscurity, we can hardly refuse to admit that Scotus here intends to make the content of the mind equivalent to a confused impression produced by the object and a clear perception determined by the active exercise of attention.

William of Ockham (1300–1347) was a force in his day, but his influence on psychology was indirect. His nominalistic position (perhaps more correctly described as conceptualism) was essentially a plea for simplification. Ockham represents the final outcome of the movement that began with John of Salisbury, a sane and broad conception of the mind free from cloudy metaphysics. Ockham's life was spent in an age of ferment. The great objective universals, Church and State, were dissolving into a multitude of particular existences, and Ockham as a political theorist entered into the spirit of an age that was beginning to feel the concrete value of particularism and individualism. Ockham's ideas were embodied in his logical writings; he seems to have taken little interest in the psychology which might have supported his logic, and contented himself with rejecting *species* and asserting that the source of all universals was to be found in the mind's power of abstraction.

§ 4. Siebeck has rescued from obscurity a pupil of Ockham—John Buridan, who became rector of the University of Paris in 1328. Buridan is best known for his discussion of freedom, a new but inadequate analysis of the conflict of emotions. Here we are more concerned with a wider question, that which Siebeck calls the "psychic mechanics" of Buridan.

In full conformity with the spirit of Ockham, Buridan

emphasized the essential unity of the mental functions and the superfluous character of the earlier lists of faculties. Previously the " parts " of the soul were quoted as comprising the five senses, the common sense, and then the *virtus phantastica*, *cogitativa*, and *memorativa*. Buridan reduces the first two to one, the cognitive power ; with this he retains memory, which may be sensuous as well as intellectual, for he grants this power to animals. But intellectual memory is not distinct from cognition, for it is simply a form of knowing which involves a time-element. Thus memory is made one with the *vis cognoscitiva*, which includes also the imagination. Retention and recollection are declared to be identical in nature : there is not one faculty for preserving ideas and another for reproducing them, but power to recall ideas is dependent on the act of thinking, which is, as it were, added on to the acquisition of ideas by the individual and makes connections that facilitate recall.

Siebeck [1] further shows how Buridan discussed the question of the " span of consciousness." We may perceive distinct things with distinct senses, but are the objects all equally clear ? Every percept has a plurality of parts, but we do not actually perceive all the parts : we perceive them as a totality (as a writer would now say, a schematic whole). When the object is small we perceive the whole rather than the parts ; but if it is large we perceive the parts better. What we perceive is in fact regulated by the Will, that is to say Attention—a repetition probably of the point made by Duns Scotus (cp. p. 129). In consequence, there is a rising and falling of ideas as they become relatively clear or obscure, a process which Siebeck regards as similar to the Herbartian dynamics of the mind.

Buridan further notes that there is an element of relativity in perception : grey near black appears brighter, while next to white it appears darker : in fact, there is no absolute value in colour (" certus gradus coloris "). In this sphere there is a distinct suggestion of later ideas when Buridan says that a small change is not immediately noticed : but he

[1] As I have not been able to see Buridan's work, I have relied for these details on Siebeck, *Beiträge zur Entstehungsgeschichte der neueren Psychologie*, Giessen, 1891.

attempts no measure of the increments required and may be simply repeating ideas found in Alhazen (cp. p. 63). In his discussion of pleasure and pain Buridan employs his idea of mechanical interaction and points out that the increase of a feeling involves a decrease in the intensity of other feelings. The soul strives to maintain the pleasant and reject the unpleasant; its forces are therefore divided when both are present, a state of mixed feeling which Buridan admits.

There is an old story that Buridan said an ass standing between two equally attractive bundles of hay would be unable to move toward either and would starve where it stood. This is now regarded as apocryphal, but it is like other stories in being good enough to be true: it serves to show how clearly the mechanical principles must have appeared to be the essence of Buridan's teaching.

For the sake of completeness two other writers should be named here. Peter d'Ailly (1350–1425) was Chancellor of the University of Paris in 1389 and became a cardinal. He wrote a book *De Anima* which helped to spread the teaching of Ockham: the differences were unessential. One point has some historical interest. Ockham's doctrine created some problems in the sphere of illusions. As the nominalist laid emphasis on the senses, it was necessary for him to explain how there could be given a sensation of that which did not exist, the "unreal" illusion. Ockham threw the burden on reason: the senses present what is, and the understanding misinterprets the data. If a man travels in a boat the trees on the river's bank appear to move: really they have no motion. Ockham was compelled to say the opinion that the trees move is due to our judgment. In that case the judgment is based on the given sensations, but the sensations are said to lack the very element which could give rise to any such opinion. D'Ailly saw this difficulty, and also saw that it could only be overcome by extending the sphere of the senses. He suggests that any given sense-datum is complicated by the previous habit of the mind: we seem to see the trees moving because the experience, which consists in the reception of the *species*, usually is an experience of moving things, not of being moved past things. This indicates a very shrewd insight into the

nature of sensation and an adequate idea of the extent to which sensations are not simple. The point was treated logically by Ockham: d'Ailly rightly tries to solve the problem as a psychological problem, but really treats it dialectically. It is significant (e.g.) that he did not inquire into the behaviour of the eyes and the possibility of their motion. Similarly we find in the question of colour mixture an instructive example of the way this age discovered and discussed the finer points of experience. On the hypothesis that " visible species " emanate from objects, a black surface under a white surface must send out species of opposite qualities, without permitting the opinion that they occupy two places. As it is contrary to the nature of the soul to think that a thing has opposite qualities in the same part, the resultant perception will be the mean quality (grey ?). So he says, " Si supra nigrum ponatur album, nec apparet album nec nigrum sed fuscum " (*De An.* viii. 4). Whether this is a resultant sensation or an " unconscious inference " is not actually made clear: the term " sensuous judgment " is, however, not much more obscure than " unconscious inference " !

The other writer here to be named is Gabriel Biel. Everyone is agreed that he discovered nothing, but as a teacher he exercised unusual influence. He produced a manual of Ockham's teaching which was probably in constant use even in the seventeenth century. Biel lived till 1495, and his name is associated with the beginning of the Tübingen University. The royal decree of 1473 ejected Ockham's disciples from Paris, and those who were of that persuasion found occupation elsewhere. Biel, if not exactly " the last of the scholastics," was one of the last. His *Collectorium ex Occamo* (Tübingen, 1512) is the well-worn textbook which the student will continue to use and pass on when Descartes has ceased to speak and even Hume has left his last question unanswered. To the modern reader Biel is a name made familiar by constant recurrence in the works of another great epitomist, Sir William Hamilton.

§ 5. The years that divided Alcuin from Thomas Aquinas lie across the page of European history like sunlight between

shadows. So far were these ages from being "dark" that they seem rather to have been the glorious age that divided two eras of darkness, one in the sixth and seventh centuries, the other in the fourteenth and fifteenth. Before Europe plunged into that second epoch of anarchy and confusion, the thirteenth century blazed out in a last triumph of achievements. From the beginning of those five centuries circumstances gave a unique character to the progress made, and history has tended to accentuate that character by speaking of orthodoxy and heresy, theology and ecclesiasticism as though they were synonyms for mediæval life. The Church was indeed predominant, but its rule was catholic and it protected all manner of men against its one enemy, the World. Not theology alone but all branches of learning were its concern, and not least the scientific branch. Yet the decline of this catholic spirit was rapid: the Inquisition was foreshadowed in the thirteenth century when Roger Bacon, the incarnation of the highest development of his century, spent his last years in prison.

Roger Bacon was not the beginning of the scientific movement: he could better be described as its last representative. Born in the first quarter of the thirteenth century (*c.* 1215), Bacon went from Oxford to Paris about 1240; his principal works were written about 1266, and from 1278 till his death in 1292 (?) he was shut off from the world in his prison. The effective part of Bacon's life belongs therefore to the years between 1235 and 1265. The development of European literature had begun to include a scientific line of thought with Adelard of Bath (p. 92), who translated Euclid into Latin, and the school of translators established by Raymond, Archbishop of Toledo, contributed some valuable material. Among the contemporaries of Roger Bacon, Albertus Magnus was honoured as a master of the sciences, William of Moerbeke encouraged scientific research without much actual knowledge, and Grosseteste was eulogized by Bacon himself in the expressive phrase "he knew the sciences." Nor should John Peckham be forgotten, a pupil of Bonaventura, a teacher at Paris and Oxford, and at his death in 1279 Archbishop of Canterbury: among his works were treatises *De Perspectiva* and a *Tractatus Sphereæ.*

A general history of the sciences would have to go further afield in this wonderful century and record many important discoveries. For the psychologist there is not much of primary importance. When attention was directed to experience rather than experiment there was at least the possibility of subtle introspective work; when experiment was emphasized the situation was more novel, ideas were less mature, and the very notion of applying experiment to the mental processes was not so much as entertained. The most important of the results are achieved with no consciousness of their ultimate significance, and foundations are laid upon which no one thinks it necessary to build. In a sense it is true to say with Windelband that "the fruitful development of empiricism during this period was only in the line of psychology," but to maintain that truth it is necessary to take empiricism as covering such widely different attitudes as those of Henry of Ghent (p. 128) and Roger Bacon. Some distinction is here required, and it will be convenient to consider as separate questions the special scientific movement and the general influence of Bacon's experimentalism.

Among the special sciences only one was at this time closely related to psychology, namely optics; and in this we have to deal only with the transmission of earlier achievements. The recognized authority on optics at this time was Alhazen (p. 60), whose work comprehended both physical and psychological material. In the thirteenth century the contents of Alhazen's work were given a new lease of life by being incorporated almost bodily in the *Perspectiva* of Witelo. The relations of the learned men of this period are well illustrated by Witelo's history. He came from the east of Europe, probably Silesia, and found his way to the more enlightened regions of Italy, in particular to Padua, where in 1260 the University was reorganized; later he journeyed to Viterbo and came in touch with the culture of the West, for there William of Moerbeke was producing a translation of Proclus; to William he dedicated in 1270 his *Perspectiva*. This work differs in some details from that of Alhazen, but is so far a reproduction of its teaching on all

psychological points that no analysis of it need be given here.[1]

Bacon's work *De Multiplicatione Specierum* shows an intimate knowledge of Alhazen. Dr. Bridges says, " Whether Bacon and Vitello (Witelo) ever came into contact there is no evidence to show." Bacon probably knew enough Arabic not to be dependent on Witelo or the anonymous translation he used, and of Moerbeke Bacon had a very low opinion. In any case the two contemporaries, Witelo and Bacon, supply an element which is not usually recognized in surveys of the thirteenth century, and was almost lost in the succeeding centuries. For while others were engaged on the nature of the faculties, these men of science had diverged into another path and were expounding with some clearness the principles of an associationist doctrine and a view of the mental processes which can be regarded as empirical in method and conclusions. The ineffectiveness of this movement justifies the belief that at the time it was no more than an incidental phase of a wider interest.

In that wider interest is to be found the ultimate significance of this scientific movement. Alhazen had employed direct observation ; Witelo's Neoplatonism was tempered with mathematics ; Bacon surpassed them both in his grasp of the idea of experiment as an independent approach to truth. Though still inclined to the outworn doctrine of the *intellectus agens* and a firm believer in astrology, Bacon had grasped some principles that might have carried him a long way if he had not been so sternly checked. The dynamic view of nature was one of those principles. Another was the belief that matter is not the inert recipient of forms, nor form the universal agency which develops the potency of matter. Bacon regards these terms as names given to the aspects of things : the things themselves live and move in a world untouched by dialectic and unreached by the mere play of the intellect. What applies to nature applies to man. Soul is nothing without body, body is nothing

[1] The idea that Witelo knew Arabic and made a translation is untenable according to Baeumker. Klemm errs in repeating that story. Witelo used a Latin version by an unknown hand, probably one of the Toledo translators, but perhaps not Gerard of Cremona, as Bridges stated.

without soul. The individual is the real starting-point. To this conclusion the mystics came by one road, and along another road the scientific minds reached the same goal. On both fell for a time darkness and obscurity, till new circumstances once more favoured the onward movement of thought

CHAPTER V

THE SIXTEENTH CENTURY

§ 1. THE first sign of a change from the disputes of the schools to the study of nature could be detected in the works of Albertus Magnus. By the end of the thirteenth century Albert was renowned for independent research and for a knowledge of things natural as well as supernatural that was one of the wonders of the age. From Albert the whole range of the sciences received a new impetus: the thirteenth century saw the production of a book *De Natura Rerum* by Thomas von Cantimpré, and the fourteenth century was illuminated by a comprehensive encyclopædia of natural history in Conrad von Megenburg's *Book of Nature* (1349). This wider study of nature took effect on the study of man almost at once. In 1501 Magnus Hundt, Professor in Leipsic, wrote a book on the *Nature of Man*, and made use for the first time of the term "Anthropologia." In these works we see the process by which the naturalistic treatment of man developed its later forms. It is impossible to read Hundt's book without feeling that it belongs to a new period. Its material is antiquated and its illustrations provoke laughter: yet it is inspired throughout by a genuine interest in the natural life of man. The whole economy of man is set forth in order—food, blood, humours, anatomy and characteristics. The soul is treated briefly and in epitome only: the centre of interest seems to have shifted from soul to body and in place of a psychology we have the rudiments of descriptive zoology.

Throughout the sixteenth century there was a steady growth of interest in this study of man as a part of nature: theological modes of thought were thus, to some extent, counterbalanced, and greater weight was given to

scientific pursuits. But the progress of science was hampered by tradition, quite apart from the sphere of religious prejudices. No one seemed able to approach the kingdom of nature without some prejudice derived from Pliny or some erratic legend from the *Physiologus*. In their eager zest for novelties the new writers were willing to credit any reports that endorsed old fables: sirens, mermaids, headless men and men with tails were faithfully described and elegantly depicted in volumes that are still the delight of all booklovers. An age of wonders was preparing the way for an age of science: imagination sowed its wild oats before reason could control the literature of natural history. The great work of Gesner [1] has many references to curiosities, but while he merely notes the reports, the later writers tend to discuss the cases as established facts. A profound belief in the infinite possibilities of nature was beginning to supersede the older ideas of passive matter and limited potentialities; it was quite commonly felt that nature might do anything, that it was absurd to deny any assertion merely on the ground that the thing was impossible, and what cannot be denied is always partly believed. The significant result of this was the realization that the dividing line between man and the rest of nature was not drawn so clearly as had been supposed. Awkward questions arose: for it was necessary to decide when a man ceases to be a man—whether six fingers are a disqualification, or inverted feet, or the absence of an eye, or the possession of two heads. On the other hand, are animals ever capable of developing human qualities? What can be said of the monk-fish or the bishop-fish? Matters were becoming complicated, and in the mass of new discoveries the ancient categories seemed inadequate. The problem of the nature of man in this new sense was definitely faced by one author, whose genial treatise will repay a little expenditure of time.

In 1574 Levinus Lemnius wrote a book *De Occultæ Naturæ Miraculis*. He adopts a very decided attitude on

[1] Conrad Gesner, *Historia Animalium*, (1551–8), one of the foundations of modern zoology. *De Anima Liber* (1563), confined to subject of senses.

our problem: form, he says, cannot deprive a creature of the right to be called man, provided it is the offspring of human parents: centaurs and such like are not human, have no rational soul, and no hope of resurrection. The last was the important item. If we read Lemnius a little further we get some more decisions that help us to understand his times. Naturalism is wonderfully developed in this little work: all the stories about monsters are accepted, but the general principle is laid down that natural causes explain them all: mind and body are both subject to changes due to climate and the different regions of the earth: humours, not evil spirits, cause diseases: even the power of speaking in unknown tongues is not due to possession but to latent memories, for if it was a dæmon that spoke from within he might as well go on speaking after the possessed was cured of the disease. The spirit of scientific inquiry shows itself in the remarks of Lemnius on conscience. Conscience, he says, is most effective in the morning: the evil vapours are then removed and the pain of conscience (like a headache) accompanies the memory of sin: to confess the sin is to gain relief, for feeling, if pent up, corrupts the humours of the body: David usually repented in the morning, and he has testified to the good results. Conscience is very dependent on one's mode of life and one's complexion or constitution: sailors, innkeepers, tightrope walkers, usurers, bankers and small shopkeepers usually have little conscience: theirs is a busy life. The sedentary and the melancholy, on the other hand, have too much conscience: they foster imaginary sins and repent unnecessarily. The young sin and are not troubled: the sick and the aged magnify their faults and brood over their deeds.

Lemnius is hardly a classical psychologist, but after the academic disputes of the preceding centuries there is a refreshing clearness and sanity in these observations. For they entirely give up the usual generalizations about the inborn knowledge of the good, and show the variety of human nature and human occupations. The curiosity which sought out strange things was not the only one to be found at this time: there was also genuine observation and a new power of seeing the meaning of ordinary events.

The Bible was still quoted fantastically, but to illustrate rather than to prove. Above all, man had become a part of nature in a sense that can be felt rather than explained: and this was the case not only in matters of structure and diet, but in questions of behaviour and the springs of action. From such naturalism as that of Lemnius we must look to the naturalism of Macchiavelli in order to grasp the whole significance of the new outlook.

§ 2. The general tendency which has been described above required for its advancement a radical change in the scientific description of the human body. In this department of knowledge the work of Mondini had remained since the fourteenth century a solitary monument. At the beginning of the sixteenth century the dissection of human bodies was more freely permitted and some progress was accordingly made. In 1510 Sylvius discovered the "Fossa Sylvii," and in 1518 Berengar von Carpi gave the first description of the conjunctiva, but the originality to which these discoveries testify was united with a persistent belief in the infallibility of Galen, and no radical change was made until Vesalius appeared. The great work of Vesalius, *De Humani Corporis Fabrica*, was produced in 1543: it came after the days of Sylvius and after the discovery by Servetus of the lesser circulation of the blood: the pupils of Vesalius were able to find errors and omissions in his work, so that it is obvious that, without detracting from the courage or the acuteness of Vesalius, we may recognize that the time was ripe for new developments. The progress was rapid: artists were engaged to prepare anatomical charts that exhibited the organs with commendable exactness: the nerves were at last separated from the tendons and ligaments and traced along their various courses: the fiction of the bone in the heart, so long handed on from generation to generation, was destroyed by the simple process of observation: the walls of the chambers of the heart were declared, against the received authorities, not to be porous. As this last discovery proved that the blood did not travel through the walls, it was necessary to look for some other explanation of its movement. Servetus solved part of the problem:

Fabricius came wonderfully near solving the other part, but it was the pupil of Fabricius, Harvey, who proposed the idea of circulation and demonstrated its superiority over the earlier ideas of ebb and flow. The numerous problems which had been slowly making the old ideas untenable were now solved by a new formula.

Great discoveries are often accepted slowly, but their greatness is shown by the way in which they penetrate every department of knowledge. Harvey's discovery made his contemporaries ask themselves how much of the current teaching on any subject would stand such shocks as this. In particular the doctrine of Galen had been the mainstay of the ancient idea of the airs in the body, concocted in the heart and distributed over the body by the arteries. The new doctrine of the body and of the circulation left no room for these fancies, but time was needed before each separate consequence of the new theory could be realized and valued. In spite of all that was implied in the new doctrine we find the old doctrine of spirits continuing to flourish. This was more a matter of neurology, but here too there seems to have been great progress and yet little radical improvement. The crucial point in the teaching of Galen was the question of the difference between the motor and sensory nerves. Galen explained the difference of function as equivalent to difference of structure, the nerves of motion being hard and those of sensation soft. No progress was made beyond this point until Rondeletius (*c.* 1550) declared that all nerves are isolated from one another, that they proceed uninterruptedly from the brain to the extremity, and consequently that all cases of paralysis are to be explained by obstruction of the nerve and not by the condition of the spinal marrow. The statements made by Rondeletius were experimentally demonstrated by Laurentius, without further progress being made. Then Varolius showed that the spinal cord was not a simple prolongation of the cerebellum, but composed of four distinct parts, two originating in the cerebrum and two in the cerebellum. Finally, Laurentius and others noticed that the spinal nerves have double roots and that the nerves develop into knots or ganglia after leaving the cord. Yet the distinction of the sensory and motor nerves as nerves that

arise from different roots was not made for another century and not fully accepted till fifty years later.

§ 3. The revolt against authority in the sphere of medicine led in many cases to the revival of contrary opinions that had no great merit to recommend them. The return to nature introduced the minds of men to a world beyond their grasp: the emancipated thinkers plunged into premature attempts to comprehend man and the universe in one formula. The result was a chaos of ideas drawn from all sources and a fantastic semblance of system. Some of the authors of these systems were primarily concerned with occult medicine, others with the pure speculative interest in the interpretation of the harmony of the universe. The theory and system of occult medicine rested on the assumption of the *spiritus*, the vital spirits in man. Roger Bacon stated the principles of this occult therapy in a way that showed clearly how it arose from the belief that a magnetic fluid resides in the body and that sympathy is a real bond of unity between different bodies. Arnauld de Villanova, who lived during the last half of the thirteenth century and was among other things a doctor, gave much attention to this theory of spirits. To understand the importance of this movement it is necessary to remember that it was opposed to the current belief that the treatment of the sick should be regulated by the times and seasons. Incredible as it seems, there is little doubt that the professional doctor did not require to see his patient or diagnose his condition: the prescription was regulated by the date of the month and other attendant but irrelevant circumstances. To the modern reader the occult therapist seems fantastic: we miss the point that he was returning to the actual observation of conditions, and that if he spoke of spirits that did not exist he none the less was in immediate touch with the object of his study. Arnauld undoubtedly represents a movement in medical science akin to that started by Roger Bacon in physical science, but in theory he does not go beyond the common idea of a relation between macrocosm and microcosm such as had been taught by Hippocrates: the real development of the doctrine of spirits was postponed till the sixteenth century.

The most bizarre and exotic figure of the sixteenth century was Paracelsus. No less than his famous contemporaries he took the entire universe as the particular subject of his researches. He touched upon all things, adorned most of them with new titles and obscured as much as he revealed. It is not the achievement but the spirit of the man that commends him to history: the noisy, quarrelsome, opinionated, cheese-fed countryman thundered out his views on God, the Universe and Man in a way that could not be ignored. His views can only be judged relatively; we must see them on the background of scholasticism to appreciate their value. There is hardly a trace of the usual arrangement of things or the usual divisions. The universe as a whole is divided into the Creator and the created: the created world includes the celestial and the terrestrial spheres, so that men have three kinds of knowledge, corresponding to these three objects. These kinds are knowledge from the flesh (senses), knowledge from the stars (science) and knowledge from God (spiritual). The terminology is in the best style of obscurantism, but the explanations are reassuring. Knowledge of God rests on purity of heart: the condition required here is the moral disposition, that Faith which Augustine before, and Luther in this generation, made the basis of the religious life. Knowledge of nature rests on the combination of theory and practice: experience is the only source of knowledge about the things of the world, but Paracelsus does not mean by experience the mere accession of sensations. For him experience is the life of thought, not altogether a common thing, because there is something about the man of genius that makes him distinct from the common herd: everyone can look at things, but only the elect can see the hidden reality of them: in brief, genius is not to be explained merely by training and circumstances. Paracelsus himself must have felt that there was something to justify this opinion in his own career, the career of a man born to make much out of every chance occasion, to see where others saw nothing, above all to produce continually ideas and theories that seemed to have no connexion with the times and places of his life.

The doctrine by which Paracelsus is best known is that of the *Archæus*, or occult vital force. The soul, according to Paracelsus, is the breath of God in man, as stated by Moses, Plato, the Stoics, the Cabbalah and other authorities! With this the practical science of man has nothing to do. Over against it is set the system of natural powers, as distinct from the supernatural power of the soul. Here the divergence from the teaching of the schools consists in the fact that the material part of man is given a real independent existence: it is not matter as dead and formless, but matter as the womb of all things created. This is the characteristic note of this naturalism, the common distinction which all the expositions share. The system of the *Archæi* was a crude and fantastic way of expounding this notion, which we shall find repeated in other forms in the later history of vitalism.

§ 4. To talk of the system of Paracelsus is to argue oneself deficient in the sense of humour. He neither planned nor chanced to produce a system. Others, however, did come nearer to that achievement, either by design or by accident. Of these Cardanus, Telesius and Campanella are three well-known examples, very typical of the large designs and incomplete structures that belong to this period. The works of Cardanus include all possible subjects, natural and supernatural. Much he writes is flagrant nonsense which the author does not seem to believe himself: he wavers particularly between his emotional belief in all manner of spirits and his professional medical opinion that the recorded ghosts or incubi are to be explained by pathology. We should be disposed to pass over Cardanus as somewhat too erratic to be trusted if it were not that he had a genius for detail, made a reputation that still endures in the history of mathematics, and was a distinct force in the seventeenth century. Cardanus has nothing to tell us about psychology in the ordinary sense: his outlook is purely objective, and what he has to say about the light of God in the mind is an echo of earlier writings. It is on such a subject as language that Cardanus is able to distinguish himself. Having travelled all over Europe and in Scotland, he was

in a position to realize the different varieties of intonation and detect in them the signs of the gradual development of human speech. Languages, he tells us, differ through climate and through habit: the use of language is to express the movements of the soul according to the distinct genius of each nation. This was no more than a hint toward a science of language, but it was a hint not entirely lost. Cardanus was also the author of the rather peculiar division of human faculties into the three classes memory, reason and imagination which was adopted by Francis Bacon as the basis of his classification of the sciences. This classification is probably meant to distinguish between experience, the process of reason which completes experience, and the productive imagination: we shall have occasion to notice again the tendency to use memory as equivalent to sense-presentations consciously perceived.

Cardanus, Telesius and Campanella present a distinct cycle of thought passing through a very typical form of evolution. Cardanus is predominantly objective and gives no account of the processes of the mind when it thinks. Telesius shares with the others the general naturalism of the Italian schools, a naturalism which had its home in Italy but was shared by all the wandering scholars and magicians of the age. But the striving after system is more apparent in Telesius, and with it there is a greater consciousness of the need for a theory of mental action and of knowledge. Man, we are told, is distinct from the animals because of a certain *substantia immissa*: in animals there is only the seminal spirit, and this is clearly required also in man, as is evident from his corporeal structure and physical needs. Thus in man there are two kinds of spirits, two distinct agencies, not merely a soul united with matter, but material spirits and something of a higher nature. The latter can be ignored while we consider the corporeal life of man, and so drops out of all serious consideration. This was the standard method of avoiding the theological part of the doctrine of man. Once fairly rid of the supernatural, Telesius begins to develop a very independent theory of the functions of the organism. In animals, nerves have channels: these must be full of something: it is invisible

and therefore must be spirit. Spirit also resides in the blood, for when blood is fresh spilt it smokes or steams. Given this basis, a kind of ambiguous materialism, Telesius is able to persuade us that the basis of experience is motion: the soul is set in motion by things, being subject to expansion and contraction, as the Stoics had said. As we proceed, the dependence of this theory on Stoicism becomes more and more apparent. The beginning of motion is in the nerves—that is to say, the animal spirits in those tubes are set in motion by the action of the object: as the object is material, this soul (at least) must be material, since it is capable of being moved by material things. But Telesius is aware of the distinction between sensation as a physical process and sensation as a psychic event. He is also dimly aware that the idea of the senses as passive had concealed some confusion between these two things. The Stoic idea of activity is therefore carefully preserved: the real sensation is not the movement as it affects the organ of sense but the actual effect on the spirits which go out as it were to meet the incoming shock. The spirit is thus made the real subject of the sensation: the soul is not confined to any one part, and therefore perception takes place instantaneously—a point doubtless subscribed to the theory by one of the Neoplatonic lecturers in the school of Padua.

As sensation is here made an elementary function of the animal spirit, and as the other spirit does not seem to be wanted for the ordinary operations of the mind, there was no reason why Telesius should not proceed to describe the operations of the mind as higher forms of sensation. This he actually proceeds to do. Modifying Aristotle by a mixture of later activism, he proceeds to make a continuous series of mental operations, from sensation up to the co-existence of many images in the mind, which is equal to the understanding. The critical part of this doctrine is the memory. Telesius assumes that every sensation, being an activity of the spirits, is also a tendency, more or less active, toward the repetition of the same movement. Consequently a second perception is distinct from a first by reason of this difference in the nature of the movements: a perception is a sensation completed by the activity of the mind, which

contributes elements not actually contained in the presentation: a memory is a sense-presentation persisting in the spirits: a recollection is a sense-movement initiated from within: the storing of images combined with the power of discrimination and of comparison constitute the elements of reason. Thus the analysis of the understanding is reduced to three terms, *memorari*, *reminisci*, and *commemorare*. The terms are significant, and show by themselves the underlying idea, namely that neither sense nor reason falls outside the natural activity of the individual. By thus interpreting sensation as an activity of the organism not separated by nature from the reason: by practically ignoring the pure reason and throwing emphasis on the complex activity of comparison and discrimination: finally, by presenting the whole as a natural process tending toward a perceptible good, the preservation of self, Telesius has anticipated the principal parts of the anthropological teaching of Bacon and Hobbes.

Telesius has been likened to Condillac. There is at least a general resemblance in the two theorists, both in regard to their good and bad points. Just as Condillac was considered to have made too little out of the subjective activity, so Campanella seems to have found this particular defect in Telesius, whom for the rest he is content to follow. With him the cycle is complete. Science has developed the conscious expression of a theory of mind, the theory has been developed in the interests of that objective life from which it sprang, and there has resulted a sense of its limitations and the desire for some more complete expression of the nature of man. If we fail to find this among the philosophers of nature, we are not likely to discover it among the disputants of the schools. Yet they contributed their share to the general progress, and it is time to see the results of these manifold activities as they are mirrored in the purely philosophic literature of the age.

The *De Subtilitate* of Cardanus was the stimulus which provoked Scaliger to write his *Exotericarum exercitationum liber XV de Subtilitate ad Hier. Cardanum*, a book printed in 1557 and afterwards frequently reprinted. Julius Cæsar Scaliger (the elder) was one of the great intellects of

the age; in addition to philological works he wrote translations and commentaries; he had a partiality for Hippocrates, Theophrastus on plants and Aristotle on animals. We may assume that much of the ancient and some of the more recent views on life and nature were known to Scaliger, though he appears to have been a violent, boastful and unreliable writer. The attack on Cardanus was primarily an exhibition of bitterness, but it had, and it retained, a certain importance, due in part to its author's learning and in part to a genuine power of analysis. Scaliger has been quoted as the first exponent of the muscular sense, on account of his statement that in walking a man can know the position of the foot without a "sensible species" to represent that position, and that weight is not, strictly speaking, perceived by touch. He says: "Appensum filo plumbum grave sentitur: manus tamen filum, non plumbum tanget." A clear distinction between active and passive touch seems to be indicated here. Also Scaliger doubted whether one single "species" was sent from the brain to effect a movement; he suggested a continuous chain of such species, and this has been regarded as a description of "innervation." Habit was described by Scaliger as the quality of movements and as residing in the moving parts themselves; habits are produced by actions, consist in organic adaptation and are closely akin to instincts. The inherence of the habit in the muscles is illustrated by the example of the bullock, which thrusts with the head before the horns are developed.[1] While these views clearly mark an increase of scientific interest in such inquiries it is difficult to assess the value of the statements. Cardanus appears to have recognized a difference between passive and active touch, so that Scaliger's views may be only an extension of that topic. The recognition of a sixth sense peculiar to the sexual organs was certainly due to Cardanus, but it was probably derived by him from Stoic traditions.

§ 5. The evidence tends to prove that all these lines of thought arose from a new comprehension of many older doctrines which acquired fresh significance in relation to

[1] After Galen, *De Usu Partium* i. 3.

the general development of interest in man and nature. Before tracing that development further, we may notice two points of a somewhat isolated character. The first is the activity of the so-called Marburg School. Rudolf Gœckel (Goclenius, 1547–1628), a professor in Marburg, wrote a book called *Psychologia* (*Ψυχολογία, hoc est de hominis perfectione*, 1590,1594, 1597), which has the distinction of being the first work produced under that title. The school was so far limited to theological interests that its doctrines need not be discussed. The term continued to be used in the school, for example, by Gœckel's pupil, Otto Casmann (*Psychologia Anthropologica*, 1594), and the *Lexicon Philosophicum* of this school (1613) exerted considerable influence by reason of the definitions which it made standard.

The second is the contribution of the mystics, which continues to have the qualities already noted in the mysticism of the twelfth and the fourteenth centuries (pp. 94, 127). As the best example is the work of St. Theresa, and this work has been excellently treated by Ribot in his study of Attention, exposition and valuation can be achieved most adequately by quoting the passage from Ribot.

"In order to trace this ascending progression toward absolute unity of consciousness, of which even the most concentrated attention is but a very faint outline, we need not have recourse to probable hypotheses, nor need we proceed theoretically and a priori. I find in the *Castillo Interior* of St. Theresa a description, step by step, of this progressive concentration of consciousness, which, starting from the ordinary state of diffusion, assumes the form of attention, passes beyond the latter, and by degrees, in a few rare cases, attains to perfect unity of intuition. The illustration in question is exceptional and single, but in the present matter one good observation is better than a hundred second-rate ones.[1] The observation deserves, moreover, our fullest confidence. It is a confession made at the behest of the spiritual power, the work of a very delicate mind, and a very able observer that well knew how to wield

[1] It is highly probable that one would find more of the same kind by examining the mystic literature of different countries. The passages here quoted are from the *Interior Castle* and a few from the *Autobiography*.

language to express the finest shades of thought. Furthermore, I must request the reader not to allow himself to be led astray by the mystic phraseology in which the observation is couched, and not to forget that here a Spanish woman of the sixteenth century analyses her mind in the language and ideas of her time; we shall be able, however, to translate the same into the language of contemporaneous psychology. This task I shall now attempt, endeavouring at the same time to point out the ever-increasing concentration and incessant narrowing of consciousness that we have noted, as they are described from her own personal experience.

"There exists," says she, "a castle built of a solitary diamond of matchless beauty and incomparable purity; to enter and to dwell in that castle is the supreme aim of the mystic. This castle is within us, within our soul; we have not to step out of ourselves to penetrate its recesses; though, nevertheless, the road thereto is long and difficult. To reach it we have to pass through seven stations: we enter the castle through the seven degrees of 'prayer.' In the preparatory stage we are still immersed in bewildering varieties of impressions and images—occupied with 'the life of the world'; or, as I should prefer to translate it, consciousness still follows its usual and normal course.

"The first objective point, or stage, is reached through 'oral prayer.' Which, interpreted, means that praying aloud—articulate speech, in other words—produces the first degree of concentration, leading the dispersed consciousness into a single confined channel.

"The second stage is that of 'mental prayer,' which means that the inwardness of thought increases; internal language is substituted for external language. The work of concentration becomes easier: consciousness, to prevent aberration, no longer requires the material support of articulate or audible words; consciousness is now satisfied with a series of uncertain images unfolding before it.

"The 'prayer of recollection' (*oraison de recueillement*) marks the third stage. What this means, I must confess, slightly puzzles me. In this state I can only perceive a still higher form of the second period, separated from it

by a very subtle shade, and appreciable only to the mystic consciousness.

"Up to this point there has been activity, movement and effort. All our faculties are still in play; now, however, it becomes necessary 'no longer to think much, but to love much.' In other words, consciousness is about to pass from the discursive form to the intuitive form, from plurality to unity; it tends no longer toward being a radiation around a fixed point, but a single state of enormous intensity. And this transition is not the effect of a capricious, arbitrary will, nor of the mere movement of thought left to itself; it needs the impulsion of a powerful love, the 'touch of divine grace,' that is, the unconscious co-operation of the whole being.

"The 'prayer of quietude' brings us to the fourth station; there 'the soul no longer produces, but receives'; this is a state of high contemplation, not exclusively known to religious mystics alone. It is truth appearing suddenly in its totality, imposing itself as such, without the long, slow process of logical demonstration.

"The fifth station, or 'prayer of union,' is the beginning of ecstasy; but it is unstable. It is 'the meeting with the divine betrothed,' but without lasting possession. 'The flowers have but half-opened their calyxes, they have only shed their first perfumes.' The fixity of consciousness is not as yet complete, it is still liable to oscillations and deviations; as yet it is unable to maintain itself in this extraordinary, unnatural state.

"Finally it attains to ecstasy in the sixth degree, through 'the prayer of rapture.' 'The body grows cold; speech and respiration are suspended, the eyes close; the slightest motion may cause the greatest efforts. . . . The senses and faculties remain without. . . . Although usually one does not lose all feeling (consciousness), still *it has happened to me to be entirely deprived of it;* this has seldom come to pass, and has lasted but for a short time. Most frequently, feeling is preserved, but one experiences an indefinable sort of agitation, and although one ceases to act outwardly, one does not fail to hear. It is like some confused sound, coming from afar. Still, *even this manner of hearing ceases when the entrancement is at its highest point.*'

"What, then, is the seventh and last station that is reached by 'the flight of the spirit'? What is there beyond ecstasy? Union with God. This is accomplished 'suddenly and violently . . . but with such force that we should strive in vain to resist the impetuous onset.' God has now descended into the substance of the soul, and becomes one with it. This distinction of the two degrees of ecstasy is not, in my opinion, without reason. At its highest degree, the very abolition of consciousness is attained by its excess of unity. This interpretation will appear well grounded upon reference to the two passages above italicized, viz. 'It has happened to me to be entirely deprived of feeling," and 'this manner of hearing ceases when the entrancement is at its highest point.' We might cite other passages to this effect from the same author. It is remarkable that in one of her 'great raptures' the Divinity appeared to her entirely without form, as a perfectly empty abstraction. Such, at least, appears to be the gist of her own words: 'And so I say that the Divinity is like a transparent diamond, supremely limpid, and much larger than the world.'[1] In this I can discern nothing else than a simple rhetorical comparison, a literary metaphor. It is, indeed, the expression of complete unity of intuition."

§ 6. The development of scientific knowledge may be regarded as the objective side of human progress. A discovery or an invention can never be a mere event; it must be also an event grasped, understood and applied. The addition of reflection to observation makes each change in circumstances an opportunity for new combinations of ideas: there is a cumulative process going on in brain and mind which creates complexities out of complexities. As every fruitful invention comes out of reflection and enters again into a higher system of reflections, the subjective element in the process ultimately comes to itself again. In the history of the sciences this is shown in the place occupied by ethics, politics and religion. The discovery of a new country in the world or a new organ in the body has its value ultimately in becoming a new element in the totality

[1] *Autobiography*, p. 526.

of thought : as such it ceases to be a new thing and becomes instead a new phase of life. When this assimilation of things in thought has been completed, a new age has begun, and all the new things have been dissolved and transmuted into a new system of values. To record the events is easy : the difficult task is to suffuse the page of history with the new light and the new atmosphere. Yet this is all important in studying the character of the fifteenth and sixteenth centuries.

Beside the lists of faculties and functions through which the psychologist strives to make his subject a science, there is another mode of thought, more concrete and more vital, which has for its medium poetry, romance, history and politics. All these agree in one point : they take the individual as a unity rather than a plurality, and begin in consequence where analytic psychology ends. The product of this method, whether a poem or a novel or a biography, may be a psychological work ; but it eludes the psychologist by ignoring his mode of exposition ; it differs from his schemes as a photograph differs from an anatomical chart. For a long time anatomists operated on apes as a substitute for human bodies ; they learned much, yet were often misled. In a similar fashion psychologists tended to dissect a mind which was either prehistoric or had never really existed as a human mind : the fifteenth century corrected the errors of both methods.

For the new psychology that now emerges we have to look to new sources. It was created in part by Macchiavelli when he undertook to study life as he found it before his eyes. It is impossible to say exactly when and where this new way of thinking begins, but in Macchiavelli's work there is a definite exposition of the conscious life of man from a point of view which supplements, if it does not wholly supersede, the previous expositions. Dante, Petrarch, Boccaccio, can all be quoted as forerunners of this political theory ; they all turned toward the living force of the individual and presented in their different ways a concrete picture of the inner life. They expressed the new idea that human life is a type of force, not a mere relation between form and matter. They tend, therefore, to express what

has been aptly called the autonomy of thought. Discovery and invention objectified this independence of individual life: new instruments, new crafts and new worlds all helped to make men feel that their powers were not limited to the mere repetition of ancient things; if they could create, they might think of themselves as creative. The time had not arrived for a comprehensive grasp of this fact; the point of view had first to be elaborated in the different departments of human activity. In politics this was achieved by Macchiavelli; in the study of life and character by Montaigne; in art and science by Leonardo da Vinci; in the sciences as a whole by Galileo. A full account of these men and their work would cover the whole range of thought in this era; the limits of our subject condemn us to the ungracious task of selecting from the mass of their achievements a few relevant details only.

All the work done at this time has two characteristics; in part it is a direct appeal to experience, in part a revival of ancient ideas. The relation of Macchiavelli to the ancients and to the scholastics can be expressed in a sentence: he turns from Plato to Thucydides. In a sense, Macchiavelli was a moralist: but he substitutes for the usual exposition of what ought to be a statement of what actually constitutes average character and conduct. To this extent Macchiavelli is a sociologist rather than a moralist, and his observations are the germ of later movements toward social psychology. But the essence of a social psychology is the consideration of individuals as social products, and that idea is not to be found in Macchiavelli. For him the individual is the first object to be considered: man and circumstances are the two factors which explain all events and all social conditions. Society here appears only as a repressive agency, from which the genius or the man of power escapes. Later theorists rejected this point of view, but Macchiavelli talked of what he saw: he expressed clearly a part of the truth, though he did not escape the insidious influence of too much study of Livy, with the consequent tendency to think first of isolated historical figures.

Fifty years after Macchiavelli's death Montaigne began to publish his essays (1580); they became a literary force

which has to be reckoned with in the history of psychology in general and in detail.

Regarded as a whole, Montaigne's work is an embodiment of the thought that there are no essences and no universals. An essence is an eternal and unalterable form of Being; but for Montaigne nothing is thus fixed or unchangeable. He turns from the idea of the soul to the idea of experience, not to dissect it and arrange its parts under given heads and categories, but to collect its varieties and show that their complexities refute all systems. It is the variety of human experience that charms Montaigne. He describes the strange mixtures found in great men: the fierce brutality and sudden tenderness of an Alexander, the tenacity and ambition of Julius Cæsar alternating with petty vanities and absurd anxieties—and so rejoices in Nature's love of contradictions. When he describes freaks and strange abnormal births, Montaigne does not regard them as exceptions to the laws of Nature: he prefers to draw attention to the infinite resources of God, Who gives us the usual and the unusual alike. What are the normal and the regular, he seems to say, more than privileged cases? And this privilege is not of nature; it is a creation of our minds, the offspring of presumption. Against human presumption Montaigne rails continually; here, if anywhere, he breaks his own rule and proclaims a universal disposition, an essential vice. Through presumption men are led to say what is or is not part of the essence of God; through presumption they make laws for nature and marvel at the way nature ignores those laws; through presumption they define the soul, explain the self, say which impulses are good and which are bad. All these things Montaigne abjures. He cites all the different views of the soul ever recorded and deduces from their contradictions the hopelessness of the task. We do not know the soul, he declares; he adds, that there is nothing astonishing in that, seeing that we do not know anything else "in its essence." In saying what things really are, people usually imply that which ought to be: there may be no earthly example of the definitions they construct, but this fact affects them not at all: what cannot be found on earth may be imagined in heaven.

It would be unjust to expect from Montaigne more than a mood and some illustrations. The illustrations are in fact multiplied to weariness: the infinite variety degenerates into chaos and palls. In refusing to aim at any system Montaigne becomes superficial; he goes far enough to see that distinction is not separation but fails to discover any way of expressing the unity which is implied in denying the separation of objects. We can excuse him for talking loosely of the senses and postponing the problems of memory while he tells another story; but we look for a real development of the "passions" and resent the dilettantism that cannot be troubled to solve the problems it raises. Such is the case, and as such it must be accepted. The real outcome is a new feeling about the varieties of human experience. For Montaigne does not only ignore the headings and divisions of the traditional teaching; he leaves us with a subtle but undeniable feeling that they were pedantically foolish.

A few prominent points stand out as isolated contributions to the knowledge of man. Being sceptical of all dogmas, Montaigne is inclined to question the rigid division between men and animals: he repeats the arguments of Plutarch and of Porphyry for the rational character of animal behaviour. He is equally open-minded about the nature of theological speculations, quoting St. Augustine's words to support the view that in expressing the attributes of God man only expresses his own qualities. Here and elsewhere Montaigne clearly anticipates the main point of Kant's attack on rational psychology: the limitations of knowledge are a favourite theme of the sceptical essayists, and Montaigne recognizes very adequately the psychological character of many religious beliefs. He does not wish to deny them, but to measure them; they are forms of experience, and, as such, real. Conscience, too, is real; it is the product of custom, varying with times and places, as may be seen by comparing different countries and ages. Socrates had a "divine sign": there is nothing unusual in the fact that sudden promptings are often good, for in some minds they are prepared by previous discipline and unnoticed meditations.

So Montaigne continues, ever changing from one topic to

another, always inclined to simple and natural explanations, denying nothing except "presumptions," and unceasingly reducing everything to the plane of experience. It might be said of Montaigne that it was his function to bring psychology down to earth. That which was regarded as above the mind he reduced to processes or contents of the mind. He studied behaviour and was mainly objective in method. He studied himself, but in this, too, he was objective; his introspection was conducted as though with the help of a looking-glass; he tells us that he has no violent passions, that his memory for names is weak, that in recalling names he often sees only the first letter—constructing in this way an inventory of the characteristics which he observes and which he assumes anyone else might observe in him. In all this there is no trace of purpose; he does not undertake to mend his faults, he merely states what they are, that you may know one more variety of nature: he never becomes a mystic, his introspection is not of that kind: he tells you the disposition of his mind as he tells you his height or his complexion. On such deep questions as the freedom of the will he does not care to say more than is implied by a discussion of the extent to which the body actually obeys the will. The Stoic ideal, as an ideal, seems to him admirable: but personally he does not feel adapted for it!

While this indirect destruction of philosophies is the significant outcome of Montaigne's work, one other element has particular interest for the historian. In the *Essais* (ii. 14) Montaigne touches on the "pleasant imagination" of a mind exactly balanced between two equal desires: he quotes the problem of choosing between two quantities of money absolutely alike, and says that the Stoics explained this choice between indistinguishables as merely accidental.[1] Montaigne objects that two *experiences* are never quite alike; in the sight or the touch of an object there is some slight difference which attracts, "though this may often occur imperceptibly." So in another place (i. 20) he tells us that the will does not control the different parts of the body; they have their own affections which do not wait

[1] Cp. p. 132, Buridan's problem.

on our permission: the motions of the face betray our thoughts; the heart, the lungs, the pulse ignore the central authority; an agreeable object spreads in us the fever of desire imperceptibly: there is in it no consciousness of will or of thought. This theory of subconscious factors is no chance element in Montaigne. He uses it to demolish the presumption that man knows himself and rules himself; he uses it to explain the Socratic "dæmon": he took it undoubtedly from Augustine, who had already used it to show that the body is partly independent of thought and will. The idea is of interest because it forms the link between Augustine's definition of sensation (*quæ non latet*) and Leibniz's definition of apperception. It has been maintained that Leibniz was directly inspired by the passage in Montaigne's *Essais* (ii. 14) and that his statements reflect the fact that Montaigne spoke of the "imperceptible" where Leibniz would say "inapperceptible."

§ 7. The various movements already described were paralleled by changes in academic teaching during this century. For two centuries a process had been going on which could only end in a complete revision of the teaching that satisfied the thirteenth century. The sciences of nature as distinct from man could go out more easily from the enchanted circle of authority: they were of the earth and might be allowed to return to it. But what was to be the result of all this ferment upon the belief in the soul and its immortality? This became the test question. "Tell us about the soul!" shouted the pupils in the classrooms of North Italy: they were not to be put off with excuses nor satisfied with old formulæ. The teachers as well as the pupils were in a state of turmoil over the new doctrines: for most of the chairs in philosophy were held by men trained in medicine: the leaven of new ideas and new methods was at work in their brains.

The honour of taking the most decisive step belongs to Pietro Pomponazzi. Born in 1462, trained in the school of philosophy and medicine at Padua, he became in 1492 the most prominent teacher in that University. The school of Padua was at this time pre-eminent in the world of letters.

Its influence was not confined to one town, but extended over the whole of North Italy, for its teachers were transferred to other centres, such as Ferrara or Bologna, and through its brilliance Italy became the leader of the New Learning. The chief interests at the close of the fifteenth century were literary or philosophical. Science had hardly begun to assert its pre-eminence: since the attempts of Roger Bacon very little had been done, and the influx of new material after the downfall of Constantinople tended to make the men of learning anxious to settle accounts between the old interpretations and the new evidence. We arrive here at the last stage of the process which began with Alexander of Hales, and here, too, we reach the last formal dispute over the meaning of the Arab and the Greek doctrines. Pomponazzi's work was the pivot on which the whole system of academic psychology turned to face in the new direction. In the detail of his work there is little to interest a modern reader: his problems are those of the later Middle Ages, and his conclusions are merely decisions of the points at issue in the schools. The immortality of the soul and the true nature of reason are his principal themes: he had the courage to strike at the most vital parts of the enemy, though it must be admitted that this sort of thing was at the time quite in the fashion and does not imply any very startling display of boldness. In character the work done by Pomponazzi is controversial rather than constructive: we look in vain for any system, but if one turns from the earlier *Summa* to Pomponazzi there is a distinct sense of relief: so much is left out, and the blanks are so eloquent. Take, for example, the great questions of the earlier treatises. Is the soul immortal? Reason, says Pomponazzi cannot prove it. Is the soul separable from the body? Experience never shows us that separate existence. What is the life of the soul apart from the body? There is no material for an answer. These and other similar topics Pomponazzi teaches us to treat with the eloquence of silence.

In the time of Pomponazzi the literature of philosophy was divided between the scholastic system of Thomas Aquinas and the teaching of Averroes. The difference between

the two masters came to a head in the question of the pure intellect. At one time Averroism was favoured by the authorities, who supposed that it taught the essential affinity of the human with the divine soul, but when they perceived that the Arabian teaching was really pantheistic, they formally condemned it. At this juncture the influence of the classical scholars brought the work of Alexander Aphrodisias into prominence, and the point then at issue was the correctness of that commentator's version of Aristotle. In this confusion of opinions Pomponazzi undertook to explain the real meaning of Aristotle. The result was original in one sense, for Pomponazzi undoubtedly restated the teaching of the *De Anima* in a forceful and adequate way. The difference which still remained between the original Aristotle and the new version need not detain us: for the purposes of history it is more important to consider what notions Pomponazzi brought into vogue and how far they represent any material gain for the theory of mental processes.

In his treatment of sensation Pomponazzi succeeds in removing part of the errors that had crept into the doctrine of species. The point here was simply the question whether the sensible object should be spoken of as something passively received and afterwards apprehended, or whether the sensation and the sensible species should be identified. The latter alternative, which Pomponazzi supports in agreement with the trend of nominalistic psychology, amounts to a clearer appreciation of the distinction between physical things or organic processes and the psychic results. In adopting this position Pomponazzi at least came nearer to the original meaning of Aristotle, namely, that the object of sense is actualized along with the sensation, and is to be described, when regarded as purely objective, as potentially sensible. Instead, then, of supposing that the object produces a species or copy of itself and that this species is the real cause of sensation, Pomponazzi goes back to the view that sense is an activity not caused by but conditioned by the presence of objects. This implies not only a direct relation between mind and its objects, but also a close union between mind and body. For the whole doctrine of species

had been required in order to bring together mind and matter, the spiritual as something superior and the material as inferior. Pomponazzi adopts a subtle and at the same time a very sound view of the relation between mind and body. For all the functions of sense body is required: there is therefore a close union, but not such an absorption of mind in body as to justify materialism. Some functions of the mind, Pomponazzi thinks, do not require physical organs, and it would therefore be wrong to speak of the soul as material. On the other hand, even these higher functions, abstract thought and the work of the intellect, do not carry us beyond the proper sphere of human experience: they imply no superhuman power operating from without, but are simply those operations of the intellect by which we see clearly that there is activity as well as passivity, and that consciousness is a real datum.

It was natural that Pomponazzi should find himself in difficulties over the question of substance. It was almost impossible at that time to declare anything to be an independent existent without committing oneself to the idea of substance. Yet Pomponazzi is inclined to regard substance as an inference, and not as the separate object of an intuition. It is not so much an object of the common sense as something given in the separate senses and then eliminated as common to them. In the general description of the senses Pomponazzi adds nothing to Aristotle, but he makes a criticism of the Arabian scheme of faculties which has some importance. The point which Pomponazzi is most anxious to maintain is that the soul is both mortal and immortal: mortal because it requires for all its functions the immediate or mediate basis of experience (immediate in sense, mediate in *cogitatio*), immortal because it is not the product but the presupposition of all experience. Pomponazzi interprets the famous saying of Aristotle, that reason comes from without, to mean that it is not conceivable as the product of the organism or as the result of sense-experience. This was probably what Aristotle did mean: in any case Pomponazzi did well to insist that reason was immanent in man as a function, and that consciousness has an independent existence as known, though it is always "immersed in matter."

To the objector who would maintain that there was no possible union between a spiritual and a material nature Pomponazzi had a ready answer. The list of powers which was usually accepted included the *vis cogitativa*. This had been inserted between the imagination and intellect as a kind of intellectual process distinguished from the intellect itself by the inferiority of its occupations. It was easy to point out that the admission of this power really undermined all objection to a union between intellect and matter: in spite of its difference of degree the *vis cogitativa* was essentially intellectual. The other argument was no less valid, though not so keen a dialectical weapon. If, says Pomponazzi, soul and body are divided, no power can reunite them. "Soul and body would have no greater unity than the oxen and the plough."

The simplification of the doctrines of sense and of intellect is the most distinctive part of Pomponazzi's work. Many other points were treated with freshness and vigour, but they were not new. What Pomponazzi has to say on attention, e.g., is merely the Stoic doctrine of the tension of spirits: the peculiar grading of animals which recognizes higher and lower levels of the animal consciousness is also Stoic. These and similar points which have been noticed as original points in Pomponazzi by his admirers are now, with more adequate knowledge of the Arabian systems, seen to be no more than a proof that Pomponazzi was essentially a scholar, and wrote with a genuine respect for experience, but not with any store of new details drawn from observation.

While the school of Padua was developing the Aristotelian tradition under the influence of humanism, another tendency was becoming active in Germany. The Protestants had their own quarrel with Scholasticism and the Arabian pantheisms; they, too, were on the side of Aristotle, for reasons of their own. The literary representative of this movement was Philip Schwarzerd, who in the manner of his day changed his name by translation into Greek, and was known thereafter as Melancthon. He added to the literature of psychology a manual for the use of Protestants (*Liber de Anima*, 1540). In this work Aristotle is merely reproduced on all the topics common to pagan and Protestant.

But the latter had a peculiar interest in conscience; the Reformation was accompanied by an increased interest in general questions of morality, and this interest it strove to foster. The growing disregard for the earlier systematic theology was compensated by a deeper sense of the personal elements in character; the rule of reason and authority was replaced by the rule of feeling. So we find Melancthon making his only distinctive contribution to psychology by insisting on a new interpretation of conscience. He asserts that conscience is not merely a knowledge of principles and a judgment of conformity, but a definite approval or disapproval; God has joined head and heart: the conclusion of the act of conscience is not knowledge of right or wrong, but the feeling of joy, or the state of repentance. As a whole, Melancthon's treatise is written with a desire to furnish a psychological groundwork for ethics: it rapidly develops into a general account of the need for good tendencies and affections, commonplaces which do not merit further attention. The Stoic apathy is here expressly rejected, and the gentle spirit of the scholarly Protestant gives a peculiar warmth to the dry bones of an Aristotelian handbook.

With Melancthon's name are associated two others. Vitus Amerbach, his colleague at Wittenberg, was a pedant, and his *De Anima* was merely a transcript of Aristotle: he lives in history as defender of the word *entelechy* against Melancthon's perverse preference for *endelechy*!

Juan Lius Vives was an itinerant Spaniard, a native of Valencia, who spent part of his time in England (1523–8), lectured at Oxford, was patronized by Wolsey and Sir Thomas More, had a quick and comprehensive mind, and from much travelling acquired a large outlook combined with a genuine knowledge of humanity and a very defective sense of system. Neither psychology nor scholarship was his strong point; he made his mark principally as a reformer of educational ideals by showing his generation the sense in which life is more than letters. What Vives wrote is a curious mixture of ancient thoughts and new ideas. He adopts the old lines of construction; Galen supplies the physiological part and Aristotle's analyses fill out the

programme. But there is a conspicuous irregularity about the whole matter: Aristotle is suddenly dropped in favour of a moderate Augustinism: elaborate Arabian subdivisions of faculties are enunciated, and then a sudden effort at simplification comes as a surprise; flashes of insight keep the reader in a state of expectation and uncertainty.

Vives begins with the division of things into organic and inorganic. The organic world includes (*a*) plants, (*b*) plant-animals, (*c*) birds and quadrupeds, (*d*) the superior animals. Plants have a nutritive power (*facultas altrix*). We expect to find next a class that has sensitive powers, but Vives chooses to distinguish those that have only the outer senses (plant-animals) from those that have both outer and inner senses (birds and quadrupeds): the *vita rationalis* is the distinctive mark of mankind. The nutritive faculty is elaborately divided into the attractive, retentive, digestive, purgative, expulsive, distributive and incorporative powers! The sensitive powers are treated as usual, with two noticeable differences. Aristotle's "medium" is treated as though it was an atmosphere through which material "species" were transmitted; its function is to spiritualize the sense object so that less of the crude object reaches the sense organs. In brief, Aristotle and atomism are uncritically combined. His was an example often followed in the next two centuries.

On the senses of sight and hearing Vives is weak. On the sense of touch he makes the interesting comment that the experience of heavy and light is distinct from that of soft and hard, and that the former are related to the whole body. This has been declared to be an early exposition of the "muscular sense" (cp. p. 149), but it is difficult to say quite what was meant. It may have been simply an original observation of fact, for Vives was the kind of man to notice things that happened to himself or his friends, and his points are often illustrated by anecdotes that testify to a growing appreciation of first-hand data. Thus he tells us:—"When I was a boy at Valencia I was ill of a fever: while my taste was deranged, I ate cherries: for many years afterwards, whenever I tasted fruit, I not only recalled the fever but also seemed to experience it again." This

narrative has a modern tone, and the same may be said of the remark that man expresses by laughter what animals express by other movements, for example the dog by wagging its tail. Here was a promising start for a comparative study of the emotions. A somewhat cruder note is struck when Vives betrays the physiological analogy underlying his conception of mental functions. In the nutrition of the body, he says, we find first reception, then retention, and finally elaboration of the material. In cognition there are similar steps: first comes imagination or the reception of the mental food (images): then memory (retention): then there is phantasy, combining and fusing: finally judgment (*vis æstimatrix*). How long, we may ask, were psychologists (perhaps unknowingly) satisfying the love of system by this kind of parallelism? How far does the metaphor still rule us and make us think too grossly of mental digestion and spiritual rumination? Perhaps the metaphor really died with those "spirits" which went up from stomach to brain, and yet it may survive in other forms. Vives at any rate has confessed his method and betrayed his thoughts.

The greatest part of the work of Vives is occupied with topics now to be mentioned. He undertakes to discuss the nature of the soul; he rejects the idea that it is a harmony, and declines to believe that it is produced in and through the formation of the body, because in that case the souls which were alike would be in bodies that were alike: but (in fact) the elephant, though most like human beings in mind, is most unlike them in body. In brief, we cannot know either the nature or the origin of the soul, but only its outward expressions. For this flash of insight Vives has been called the father of empirical psychology: he was, however, a neglectful parent, for he spent the balance of his time on metaphysical productions, trying to prove that mind and body are related as light and air. Here we have again Augustinian ideas emerging, and the whole classification of faculties is finally taken from Augustine—namely, intellect, will, and memory.

Here we may find another point of considerable interest. The intellect as such (*mens particularis*), which is the person's

own mentality, and not any superpersonal intellect, is described as beginning with the *intellectus simplex*, the elementary grasp of the meaning of a presentation. This germ of thought then grows and expands into a system of thought by the action of various mental operations named *consideratio, recordatio, collatio, discursus, judicium, voluntas, contemplatio.* This catalogue is formidable, but it deserves attention: for Vives had an exceptional feeling of the vitality of mind: he seems to feel its life and growth as though it were a visible thing of flesh and blood. Every term in this catalogue marks a real advance, and the goal is complete development, for contemplation is here used as equivalent to fruition, the restful enjoyment of attained knowledge. The scheme itself might not suggest this sense of vitality, but the details make it impressive. An affection or concomitant feeling, says Vives, increases the strength of memory: that is to say, the idea abides because we have not merely *had* it but also *lived* it. Interest and attention are emphasized, for they are the living aspects of the procession of ideas. Association is discussed, not as mere association of ideas, but rather as a statement of the way in which experiences cling together; the law of association is here formulated for the first time in its most general terms, and, since animals are also guided by it, association is more closely related to feeling than to reason. Beneath the life of thought there is the unnoticed flow of experiences: impressions are received when there is no conscious attention, and the fact is only realized some time after. Sometimes we know an event took place, but afterwards fail to recall it: there was at the time no attention, and so reflection (*consideratio*) fails to bring back the lost detail.

Finally Vives supports both nominalism and voluntarism. The picture we have in the mind is made up of attributes only: the understanding puts them together to make the compound object. Voluntarism comes out in the assertion that knowledge only serves to find an object for effort (conation). In connection with the tendency toward nominalism an important point arises. Is the *simplex intelligentia*, which Vives opposes to the *composita*, a doctrine

of "simple ideas"? If it were so, the fact would be of some historical interest. What Vives actually says is that the copula belongs to the faculty of judgment; it is an addition to the given data. That is only intelligible on the assumption that the elementary presentations are regarded by Vives as units of thought: form and colour, for example, being separate data which the inner sense first unites in the judgment that "this form is coloured." That was undoubtedly the natural way to work out a nominalistic psychology; it seems to be the right interpretation of what Vives says and most probably marks a stage in the progress of thought toward Locke's teaching.

It would be easy to point out confusions in this work of Vives, but there is more profit to be got from a frank recognition that his genius, though erratic, abounded in suggestive thoughts. He is in that respect a typical figure of this age of unrest, still labouring under dead formulæ, and yet often conscious of quickening impulses. The last and in some ways the most significant part of the work is on the "passions." This is so far a practical discussion, with ethical and educational bearings, that we may postpone its consideration until that aspect of the century can be reviewed as a whole (p. 173).

§ 8. The new psychology which began with Macchiavelli rose out of the general tendency toward a fresh valuation of the individual. It coincided with new forces at work in the social life of the Italian cities and acted as a stimulus toward some theoretical grasp of those forces. In one direction this theoretical formulation presents itself as a more direct study of the psychological relation between individuals, passing imperceptibly into a social psychology. The progressive revival of classical studies tended to bring into fuller consideration the analogy between the individualism of the ancient communities and the individualism of the Italian communities. Thucydides, Livy, and Plutarch furnished concrete types of human nature which could be studied both by the light of ancient theories and by the help of observation. The study of these historical types quickened interest in education which now began to appear

as primarily the art of producing ideal types of character. As compared with the educational theory of the Middle Ages, that of the fifteenth century consciously aims to produce men who can achieve distinction among their fellows; not the Christian saint, but the "orator" (as Quintilian understood the term) is the figure now established as a pattern to be reproduced.

The movement began with the particular efforts of certain great teachers to educate their pupils on new principles. During the fifteenth century such teachers as Vittorino and Alberti devoted themselves to the work of formulating new schemes of education adapted to the new ideals. These schemes were practical and to a large extent empirical; there is not much indication of any broad theoretical basis except perhaps in Alberti, whose *Trattato della Famiglia* has been described as containing "a consistent view both of the social environment through and for which the training of youth is to be devised, and of the moral and psychological conditions involved." The psychology of the *Trattato* is meagre, the writer being more interested in action than the springs of action, and contenting himself with an anti-scholastic declaration of the natural goodness of man, the primacy of the scientific intellect and curiosity, and the possibility of complete self-realization through physical and mental training. Among the most important factors in education is reckoned that intercourse with others which produces ambition and a sense of responsibility.

We must not trespass upon the history of education further than our subject legitimately takes us, but as genetic psychology plays a large part to-day it is permissible to remind the reader that education, when it is not mere teaching, necessarily reflects the current views of human nature and affords room for both observation and experiment. Men like Alberti, Vittorino, and Erasmus were comprehensive thinkers, who grasped by common sense the inner affinity between education and psychology; their works have the quality which belongs to art, the quality of embodying principles which others would abstract for separate consideration. In Erasmus there are obvious marks of the new valuation of human capacity: the nature of man is described

as an unlimited potentiality, education can achieve everything, man is not determined (or predestined) to any one line of development; men are "not born, but made." These ideas have significance when compared with earlier or contemporary views, the views of Augustine, Pelagius, Luther, or Calvin; but the detail is scanty and does not go beyond repetition of common views about early impressions, imitation, and the susceptibility of the young—all parts of the Platonic tradition. Interest in the education of women arose from the desire for social improvements: it had no psychological origin, but it reacted upon the general field of psychology by sharpening insight into individual differences as related to sex development: a mild form of individual psychology thus emerged from discussion of the education of girls, the cause and cure of vanity, triviality and love of intrigue being objects of practical educational movements. Here and there a new ray of light falls from these directions to schoolmasters, as for example the warning not to prohibit children from making sketches on the margins of copy-books, or the remark that the home is the child's world and its occupants the first "society" which its mind will reproduce. Melancthon does not appear to have made any union of his psychology and his educational theory: nor did Montaigne; so that Vives alone during the sixteenth century attempted what might be called specifically a psychology of learning.

With Vives psychology received a new impulse mainly because his first interest was education: he approached psychology "from the point of view of effectiveness in instruction," and "his study of psychology was rather the product and accompaniment of his educational activity than its originating impulse." This explains very largely the fresh elements in the psychology of Vives: the high *a priori* road is abandoned and the variety of the soul's manifestations begin to take rank above the formal deduction of its powers. Unfortunately Vives was too busy to do more than show how the direct study of the mind might be furthered by a careful analysis of the process of learning.

Proof of a widespread interest in the psychological basis upon which educational theories should be built is to be

found in various treatises of the century. For the most part they follow the vague efforts of Erasmus to define character and aptitude, the *natura specialis* of the individual. Sturm in Germany, Elyot and Wotton in England, gave teachers an impulse toward the study of character and temperament, but the only definite attack upon the problem was made by Juan Huarte, author of the *Examen de Ingenios para las Ciencas* (1575), translated into English as "Examination of Men's Wits." Huarte belonged to Spain, the land of Vives, and his work may be described as a further development of the teaching of Vives with a more emphatic bias toward problems of education. A fanciful correlation of faculties with subjects mars the value of Huarte's work, but we may agree that "what most interests us is the fact of direct concern for psychological analysis as a specific aid to the right adjustment of instruction."

The general significance of this movement may be summed up briefly. The progress of learning, the revival of classical knowledge, and the growth of a new individualism had as one of their results a fresh interest in the methods of imparting knowledge and building up character. Since the great educators of this age always aimed to master the secrets of character and character-building, they were naturally led further and further into the problems of connate tendencies, instincts, varieties of memory and degrees of intellectual capacity. Uniformity ceased to be of interest; the *natura specialis* became the object of study; the variety of nature is most apparent in children and young people, so that a theory of the mind which begins from differences and from the point of view of growth or development is a natural outcome. Individuals living in communities tend to appear uniform in character; to the superficial or untrained observer they seem to be all of one pattern. This tendency persists, for example, in Erasmus, whose *natura specialis* clearly implies as its background a *natura universalis*. Here the logical universal conflicts with the scientific; the abstract idea of man is retained along with the new concrete idea of individuals. This is a mark of transition. When the sixteenth century closes we find ourselves appreciably further away from the mediæval thought and nearer

Locke or Rousseau. This is due to the fact that for the educator interest centres upon the understanding rather than "pure reason," and when the understanding of the child has been described as something "made," it is easy to go one step further and look on the human understanding, the adult mind, as also for the most part a manufactured article. The work of Locke is here foreshadowed; it only remains to note that the emotions still escaped attention, awaiting their resurrection in the work of Rousseau.

§ 9. The mixture of theory and practice which characterizes all educational reforms, makes that profession a natural bridge from the abstract to the concrete. A similar quality belongs to the sphere of conduct, and in the psychology of conduct the men of the sixteenth century found a need for fresh and concrete modes of treatment. The first step in this direction was to emphasize natural qualities, taking a cue from the physiological basis of temperaments. Telesius, who made virtues and vices into innate tendencies, and Vives, who used the distinction of warm and cold blood to explain the difference between courage and caution, are examples of the naturalistic tendency. A more subtle point was made by Scaliger when he asserted that brave men feel the force of an insult in those muscles which serve for striking, while the less pugnacious type are affected in the organs of speech. This we may especially commend to those modern writers who reduce all consciousness to terms of motor-innervation! Another writer, Neuhus, boldly makes purity of heart equivalent to purity of blood: thick and impure blood is the cause of irreverence, irreligion, and shamelessness. As usual, the innovators went to extremes in emphasizing this physiological view of morals.

The avowed object of these theorists was to treat the emotions with no reference to moral values; they aimed at a theory of the passions which would make these phenomena purely a matter of "physics," meaning by that term what we should now call natural science. The movement was supported by a general revival of interest in the details of character and its expression. From temperaments, as treated by Galen, the interest spread to Physiognomics,

exhibited partly in translations from Aristotle, partly in more original views which had been fostered by Leonardo da Vinci's study of expressions from the artist's standpoint. Physiognomics was divided into a general and a special science. While some concerned themselves with national or individual characters, others studied the face, the hands, the feet, the different periods of life or the different sexes. The literature of the subject became large and full of detail. In spite of the lack of any unifying principles, the whole movement was a decided contribution to what would now be called Individual Psychology.

A full account of all the contributions made under these different heads would take a disproportionate amount of space. It must suffice to note them as signs of the times, and pass on to the treatises which deal with the emotions. Melancthon led the way toward a physiological method in dealing with these states of the soul, defining joy and sorrow in terms of expansion and contraction, which ultimately comes down to movements of the heart and blood. But the classic exposition was given by Vives, whose work may be more fully considered because it is the best example of the work done at this time.

Vives rejects the Stoic views and openly declares that the whole course of life is regulated by feelings; feelings can obscure perceptions and are not subordinate to intellect, but frequently hinder or destroy the intellectual activities. Emotions are rooted in dispositions, so that a dominant tendency will colour all a man's thoughts, either continuously or periodically. These dispositions can be changed physically by diet, mentally by training; for an opinion often lies at the root of an emotion, and change of opinion changes the emotional attitude. This point leads on to the favourite topic of Rhetoric as the art of exciting or allaying the emotions of men, a phase of Aristotelian teaching which was revived at this time. The individualistic tendency shows itself in the lengthy treatment of self-approbation, the egoistic sentiment which directly or indirectly pervades all the actions of some men, even though the victim of the tendency does not recognize its presence. The addition of a little pessimism to this doctrine would have given it the

quality of the maxims produced by the French in the eighteenth century.

On the basis of these general statements Vives builds a descriptive psychology of the emotions. The physiological treatment of the emotions fell short of completeness through failure in studying the phenomena inductively. Vives made a beginning of such a study, and his work on the "passions" marks a new era in the history of that troublesome subject, not by virtue of a new classification, but rather on account of the careful way in which the phenomena are described.

The fundamental passion is Love; men love that which they consider good, for the good has a certain natural agreement with the individual's nature, and as such is both attractive and satisfying. The human being loves itself most of all, and next those whose interests or activities harmonize with its welfare. The benevolent love those whose welfare they promote, but the recipient of kindness has a less degree of love because his gratitude is mixed with shame. Love is strengthened by sympathy, as the mother loves most the child whom others dislike: it is increased in reconciliations, for the temporary intermission and restraint serve to increase its power; but many checks or disappointments can convert it into hate. Desire, hope, and joy are also concerned with the good according as it is wanted, expected, or confidently believed to be attainable. Evil arouses anger, which is most intense when feelings are thwarted: sensible pain, such as a blow struck in anger, arouses less violent resentment than that which follows an insult. In the matter of anger men differ greatly, some being quick to feel it and quick to cease from it, others being moved more slowly but nursing their wrath for long. The sense of injury involves some desire for revenge, but this is sometimes satisfied by obtaining the means to inflict harm without actually employing them. A less violent state of feeling than hate is that called resentment (*offensio*). This is a tendency to be sensitive about past, present, or future acts regarded as possibly injurious. It is properly a disposition; often mere novelty excites it; the man who stays too much at home finds the world barbarous and

stupid. The feeling of hate arises from persistent anger or from grudging: we hate most strongly when there is a basis of love, that is to say when the object is one that excites the deepest interest. Pity, as it increases love, tends to diminish hate.

Vives discusses also fear, respect, modesty, grief, longing, pity, envy (a contraction of the mind which is all the worse because it is concealed, while other feelings are shared), jealousy (a form of fear, anticipating that a good will accrue to one whom we hate), and indignation, the only affection which rests on the idea of merit and implies moral valuations. The description of these different moods and emotions is fresh and varied, but its exact quality, depending on the finer points of detail, is not reproducible in an epitome. The work was carried a stage further by Laelius Peregrinus, who published in 1598 a little book that may best be regarded as an essay in the empirical psychology of the feelings and an appendix to the essay of Vives. The point common to both and characteristic of this new tendency is the acceptance of the two movements, attraction and repulsion, as the basis for grouping inner movements of the feelings. This method now superseded the division into concupiscible and irascible passions, which had so long dominated the mediæval traditions.

In this, as in many other points, we find the conclusion and summary of the work represented by Bacon. In the *Advancement of Learning* (Bk. vii, chap. iii.) Bacon wrote what was at once an epitome of the progress made and a clear direction of the course to be pursued afterwards. He adopts the practical tone and writes of the "cultivation" or "cure," i.e. "care" of the mind. As a programme of practical or applied psychology the chapter deserves careful attention: its historical importance is shown by the fact that the French Encyclopædists openly adopted the Baconian scheme of sciences, and modern psychologists have often noted that their work actually fulfils the demands of Bacon's programme.

"The first article," says Bacon, "of the culture of the mind will regard the different natures or dispositions of men." These he finds have already been studied by the astrologers,

who professed to say that "some are by nature formed for contemplation, others for politics, others for war." This primitive type of vocational psychology did not commend itself to Bacon, but he rightly recognized that it was trying to do what otherwise remained wholly neglected. Next to the astrologers the poets were to be ranked as exponents of a concrete individual psychology, in which they were surpassed by the "more prudent historians." The defects of this work were obvious to Bacon, but he thought it might be taken as a beginning for more systematic inquiry, "so that an artificial (i.e. scientific) and accurate dissection may be made of men's minds and natures, and the secret disposition of each man laid open, that from a knowledge of the whole, the precepts concerning the cures of the mind may be more rightly formed. And not only the characters of dispositions impressed by nature should be received into this treatise, but these also which are otherwise imposed upon the mind by the sex, age, country, state of health, make of body, etc. And again, those which proceed from fortune, as in princes, nobles, common people, the rich, the poor, magistrates, the ignorant, the happy, the miserable, etc."

The magnificent sweep of this outlook may be left to the reader's approbation without comment. What Bacon could have done to supply the detail in each or all of these departments we shall never know. Apparently the idea was not unique: as the previous pages have shown, there was a strong though diffuse current of thought setting in this direction, and many minor works floated for a while on that river of time which Bacon accused of bringing down only "what is light and tumid." Among these may be mentioned the work of De la Chambre, of Cordemoy, of Neuhus and of Clarmont.[1] In the history of literature and of science these works have been eclipsed by the greater achievements of Descartes, on the one hand, and of the French moralists on the other.

[1] See details in Steinitzer.

PART III

FROM THE SIXTEENTH TO THE EIGHTEENTH CENTURY

CHAPTER

THE SCIENTIFIC BASIS

§ 1. PARACELSUS was described by Bacon as a man who dragged everything before the judgment stool of experience. The description could be applied with equal truth to the other great naturalists of that century. In spite of much mysticism and wholly unscientific credulity they had appealed to experience and to experience they were compelled to go. During the close of the sixteenth and the whole course of the seventeenth century we see the results of this appeal to experience slowly working themselves out. It would have been worse than useless to appeal to the senses if no one had in consequence actually gone to the senses for information. A new method stated in formulæ that covered no new activities would have been a proof of the most hopeless kind of intellectual degradation. Fortunately, if the professions of method outran the actual achievements, there was none the less a genuine spirit of inquiry behind them, and what some failed to do the others achieved. As they did not lose themselves in vague generalities, these scientific workers ought not to be passed over with such loose statements as are usually made about the appeal to the senses and to experience. They deserve our attention a little longer while we ask which senses they actually did appeal to and what kind of experience they took for their sure foundations. Putting the question in this way shows the significance of the period upon which we now enter. We find that it is dominated by the progress of physics and that there is no violent break in the continuity of thought. The principal sciences of the Middle Ages were astronomy and optics, both of them having special features to recommend them. Astronomy was more or less concerned with the heavens,

and was therefore the science of the ultimate immovable reality, a most dignified affair even though in form it was created by Ptolemy. Next to this celestial science came the study of light, which fascinated the minds of men in each successive generation and slowly passed from the region of imaginative metaphysics of light to the mathematical study of refraction and reflection. In the progress of astronomy at the hands of Copernicus and Galileo we see the real decline of the mediæval system of thought, the disappearance of that world in which it had lived and grown old. Similarly in the progress of optics the writers are consciously attacking one of the fundamental doctrines of their age. We may accept to-day a new discovery about the properties of light or a new type of lens with scarcely a sensation of any kind: in the seventeenth century such an event was closely connected with the question of the reality of the world in which men lived and the problem of happiness in this life and the life to come. For since the first consideration of man was to justify the ways of God and show that the facts did not wholly disprove the existence of Providence, every new statement of things observed had to be securely fastened into a general scheme by specific (and irrelevant) comments on the relation of the particular item to the wisdom of the Creator.

Apart then from the general question of scientific advance, these two sciences have a particular relation to the development of thought. They represent the crucial point at which science and belief came into contact, and the second of them, optics, is concerned with that which was from the earliest times regarded as a privileged sense, superior to all the other senses of man.

In asking themselves how this sense operated, men were invading the inner sanctuary of experience. In showing that the operations of light could be brought under intelligible laws and that the eye was an optical instrument, the men of science were introducing the test of experiment where it was most likely to be regarded as a profanation. For the present subject the progress of optics has also a special significance because it becomes a department of physiological psychology and plays its part in the revision

of the theory of visible species and so ultimately of the psychological theory of vision. It will be necessary now to follow the development of physics so far as concerns the reduction of the conditions of sensation to mechanical laws; then to consider the effect of anatomical and physiological writings on the general conception of the organs of sense and thought; and finally to record the theories of the mind which occupy the same period of time.

The sixteenth century was predominantly an age of destruction. In the seventeenth century there appears a new desire, not so much to create systems as to think systematically under the new conditions. The spirit of Montaigne was not universal: its indifference verged on despair and its readiness to believe in all things was akin to belief in nothing. The increase of knowledge threatened once more to precipitate men's minds into chaos: the great need of the age was for a system that could unite without fettering and a method that would serve as a clue in the labyrinth of facts. Bacon, Galileo, Hobbes, Descartes, and Locke all attempted in different ways to cope with this new demand. Galileo laid the foundation of inductive science, concerning himself almost exclusively with the physical sciences. He paid little attention to the question of the mind's relation to its objects, but was led incidentally to restate the distinction of primary and secondary qualities as recognized by Democritus and by Aristotle. By so doing Galileo secured greater independence for the sphere of quantitative measurement: quantity, number and motion were distinguished as measurable objects from such subjective states as feelings and emotions. The question of applying measurement to the senses was quickly raised, but the idea of measuring the soul was treated as a paradox. From the time of Augustine the fact that the soul was not quantitative had remained an axiom.

§ 2. The movement represented in Italy by Galileo's *Il Saggiatore* (1623) was paralleled in England by Bacon's *De Dignitate et Augmentis Scientiarum*. First published in 1605, but reproduced with this title in 1623, Bacon's work was more ambitious but less penetrating than that of

Galileo. As a reformer of method he opposed the debased Aristotelianism of his age and expounded the new inductive methods. A complex character, a man not wholly devoted to science but interested also in affairs of state, with a keen eye for human motives and a desire for literary fame, Bacon united in a curious fashion the qualities of the essayist and the system-maker, of Montaigne and Telesius. With some new ideas he combined a great deal of credulity and a habit of accepting traditions uncritically. He enters into the history of psychology as the author of a classification of the sciences in which he assigns a place to the science of the soul: the effects of this scheme of work can be traced in more than one of Bacon's successors.

The whole doctrine of man is here divided into "Philosophia Humanitatis et Civilis," the study of man as such and the study of man as citizen. The former of these is subdivided into doctrine of the body and doctrine of the soul. Prior to this Bacon thinks there should be a general science of man: a laborious collection of evidence about individuals should result in a concept of man formed in a purely empirical fashion and designed to show the actual nature and limits of human capacity. This part of the scheme reflects the influence of that movement toward scientific anthropology which had already begun. After these should come the study of the union of soul and body, including the study of expression (physiognomics) and the interpretation of dreams. The general object of these two branches of study is to determine in what way and to what extent the humours and temperament of the body affect the soul: also, how the soul affects the body. In the subdivisions of the scheme the first is concerned with the body: the headings there given are taken from the encyclopædic treatises of the times and call for no comment. The second is the doctrine of the soul. One part of this is to be devoted to the spirit in the theological sense, the breath of God. This *anima rationalis* is derived from inspiration and by inspiration it must be treated: it is consigned to theology. The sensitive soul is a created thing and can be treated as one among other natural objects: that is to say, it may be treated physically as an object of natural

science. Bacon made room in his scheme for the study of divination and fascination or the action of imagination upon bodies: but as he did not do more than create a scheme it is not necessary to say more about the dubious items.

More than anyone else at this period, Bacon excelled in making plans which were not carried out. When we turn from the scheme to actual achievements there is little to say. Bacon's writings show the strong impression made on him by Telesius. He regards the souls of animals as altogether material, a mixture of fire and air, situated in the head, running through the nerves and fed from the spirituous element of arterial blood. In animals this is the chief soul: in man it is the organic instrument of the rational soul. In the sphere of the senses Bacon did a little experimental work on the nature of sound, but did not advance from physical to psychological problems. He divided the faculties of the mind in a way already suggested by Campanella into three classes, memory, imagination, and reason. To these he ascribed respectively the "disciplines" of history, poetry, and philosophy. More interesting than this dubious classification is the famous division of the idola. Bacon shows a distinct tendency toward a broad treatment of the mind. To him we owe the often quoted remark that the human understanding is not a dry light but is suffused and coloured by will. Among the idola he reckons natural prejudices, *idola tribus*, which are connate tendencies that affect the individual's thoughts. This is in direct contrast with the idea of human intellect as the repository of eternal truths, a universal essence alike in all. Followed to its end the thought would lead to a voluntaristic doctrine and produce a fruitful study of the actual varieties of the human mind.[1]

Bacon did not follow out this or any other of his suggestive propositions, but the ideas which he expressed ruled the progress of inductive or experimental psychology all through its development. It is to the nineteenth century that we must look to see the full outcome of this comprehensive outline. The distinction of objective and subjective psychology, the study of the expression of emotions,

[1] Cp. p. 221, for the outline of individual psychology.

the inquiry into human faculty based on statistics—all these are direct fulfilments of the plan for a comprehensive study of the human mind which Bacon partly originated and partly codified as it came to him from the Italian school of the sixteenth century.

§ 3. After these general schemes we may pass to the question of departmental sciences and treatment of details. In the sphere of physical science the new movement can be traced as far back as Leonardo da Vinci in the fifteenth century. Among the numerous inventions and discoveries of this versatile genius we find some contributions to the sciences of acoustics and optics. The honour of inventing the camera obscura, now given to him, makes Leonardo the first of the long series of investigators whose work culminates in the Newtonian theory of light. As a painter Leonardo was interested in the nature of colours and their mixture. He was the author of a theory of colours. He started from the basis of sensation, not from the physical analysis of light, and consequently follows the Aristotelian way of regarding black and white as colours, along with four other colours which he regarded as principal colours, namely red, yellow, green and blue. This theory was revived at a later date in opposition to Young's theory.[1]

With the great name of Kepler we come to the seventeenth century. The connection of this with the preceding period of experimental science, the thirteenth century, is curiously preserved by the title of the work produced by Kepler in 1604. With a graceful reference to Vitello (Witelo) he called this work *Paralipomena, in Vitellionem*, though the contents do not bear much relation to the views of his predecessor. The work gives a description of the eye, explains the image on the retina, and is the real beginning of dioptrics. The nature of the image on the retina was further explained by Christoph Scheiner in his *Oculus sive Fundamentum Opticum* (1652): here Scheiner also gave a correct account of accommodation as the change of the convexity of the lens. As this is not a history of physical science, the minor writers who prepared the

[1] Leonardo (1452–1519) wrote *Trattato della Pittura*, first published in 1551.

way for Kepler and for Newton may be passed over while we put together the points which affect the history of physiological psychology.[1]

Aristotle's views on light and colour suffered from two principal defects. He knew too little about the structure of the eye and too little about the problems of refraction and of focal points. The period with which we are now dealing was the time when these defects either had been or were in process of being rectified. Kepler's knowledge of the purely optical parts of the process of vision, the action of light in passing through lenses and the relation of the convexity or concavity of those lenses to the point at which the rays come to a focus, enabled him to attack Aristotle's theory of a transparent medium. According to Aristotle an object ceased to be visible when it was in contact with the eye because the medium was then excluded: according to Kepler the medium was entirely unnecessary because in any case the rays of light would not converge as required for vision under such circumstances. The extreme case of actual contact was not important, but the general explanation of near and far sightedness was involved and Kepler had the advantage of explaining vision as a special instance of the general laws of optics. Then, again, the defective condition of science previous to this period had made it possible to regard the image visible in the eye as the actual object of vision for the person possessing the eye, because the rays were regarded as staying in and not passing through the lenses. Kepler, distinguishing between the reflection from the eye and the actual transmission of light through the lenses, rejected the common view that the crystalline lens was the place in which the rays came to a focus and so arrived at the new doctrine that the retina was the seat of visual stimulation, or, as he puts it, the place where the converging rays meet the spirits from the brain.

This discovery met with a somewhat unexpected obstacle in the discovery of the "blind spot" which was detected by Mariotte (1668) and seemed to refute the whole theory

[1] Special contributions were made by J. B. Porta (1583), *De refractione Libri IX*; Telesius, *De iride et coloribus* (1590); Fabricius, *De Visione* (1600). See further Heller and Helmholtz, *passim*.

by being at once the point of entry for the optical nerve into the retina and itself devoid of sensibility to light. Mariotte was induced by this discovery to assert that the choroid and not the retina was the part of the eye which directly subserved vision, but Haller and Bernoulli explained away the apparent objections to the retina. The position of Kepler was thus ultimately established.

Optics and dioptrics form an important part of all the greater philosophical treatises after Kepler's time. Descartes [1] wrote at length on the subject, and Hobbes spent many years on its problems. Both of these writers grasped the importance of the subject for a general theory of sensation. They acquitted themselves as philosophers with credit, but this credit was due rather to their reform of philosophy than their contributions to science. Nothing of real importance was done till Newton produced his physical analysis of the spectrum. This gave a new turn to the question of colours. Hitherto the basis for a discussion of colour had been either visual experience or the mixing of pigments. Newton's method was different from both and in itself was simply an objective physical analysis. But Newton still persisted in treating black as one of the colours, though this was consistent only with the psychological point of view. The whole question of colour as a part of physiological psychology was thus left in confusion, waiting for the union of physical, physiological and psychological data.

In addition to the question of the nature and action of light and to that of colour the consideration of vision leads to the question of the perception of space. As it became clear that in vision there was no picture sent from the object to the mind, and, further, that in any case the picture would not arrive in the mind with the place of its origin marked upon it, the philosophers were harassed by the difficulty of explaining the fact that visual images are taken to indicate external position. Descartes, being at once philosopher and physicist, could not avoid the problem, but he offered no real solution. As regards the physical part of the process he maintained that vision was wholly a matter of motion, light was a movement, the movement came from the object

[1] See p. 203, and for other writers p. 265.

to the outer organ, the eye, and passed thence to the inner organ, the part of the brain in which the nerves of the eye terminated. Descartes did not commit the error of supposing that the inner organ had for its object the outer organ; he regarded the outer organ as no more than a medium for the transmission of the motion, so that the resulting motion which arises in the brain comes directly from the object. Between the eye and the object the line of light stretches like a rod, being a continuous line of matter in motion: the brain is directly affected at the part at which this line terminates inward and we know every change in the position of objects by the corresponding change in the affection of the brain. By this means we localize in space the different objects we perceive, and if we ask further how we know the space in which we so localize things we are told that this is done by a kind of innate geometry. Here we pass from the empirical side of Descartes' system to the *a priori* idealistic side: the idea of space is joined to the perception by the co-operation of God. For the world of our experience is not really known directly through the senses: we have no ultimate ground for saying that the object causes the idea: we can only suppose that God would not make our lives an eternal hallucination. The results of this teaching will be seen in the work of Malebranche: its significance cannot be grasped without further details of the relation between mind and body.

§ 4. For those who accepted it Harvey's discovery of the circulation of the blood involved a profound change in the conception of the relations between soul and body. The idea that the soul was at once the basis of life and of thought now began to give place to a more distinct conception of the difference between the physical processes and the psychic activities. The progress of physiology made it increasingly possible to think of the movements of the body as capable of explanation without reference to that soul which had so long been defined as the principle of movement. This new direction of thought shows itself more or less distinctly in all the writers who discuss from their various points of view the nature of the soul.

In the seventeenth century two distinct influences were at work. One of these came from the progress of mechanical science and was adopted, by those who accepted Harvey's conclusions, as the natural corollary of this discovery: they argued that the circulation of the blood was a mechanical process and that the rest of the processes in the body might be reduced to mechanical operations. The other influence came from chemistry and was reinforced by the observation of processes not regarded as mechanical, the chief instance being that of fermentation. In their relation to physiology these influences appear as deciding the difference between the mechanical and chemical schools. We may begin with the latter as representing the older tradition though in a new form.

The beginning of the chemical school is to be found in Paracelsus. In the seventeenth century his doctrine was advanced by Johann Baptist van Helmont, a man whose work was a strange mixture of religious beliefs, mystical expansiveness and keen insight into facts. His principal work, the *Ortus Medicinæ*, was published in 1628: he died in 1644, more than a century after the death of Paracelsus and sixteen years before the death of Descartes. He was by nature a mixture of the different temperaments of Paracelsus, whom he consciously followed, and of Descartes, whom he unconsciously resembled. The central point of his teaching, for our present purpose, is the treatment of the relations between mind and body. Everything, he declares, has a living spirit, which he variously describes as *flamma*, *aura*, or *spiritus vitalis*. This is present in metals as a principle of cohesion, in plants as a composite humour, and in animals and man as a substantial vital principle. In this part of his teaching Helmont follows the "cosmic philosophy" of Paracelsus and recalls the Stoic theory of Pneuma as it appears in Philo and the Neoplatonists. The theosophy of the seventeenth century was closely allied to the Stoic-Philonic tradition, and to that same source we may ascribe the distinction made by Helmont between men and animals: the vital spirit is common to both, but man is only like the animals: in essence he is the image of God. Helmont declares that man cannot be defined as a

rational animal: on the contrary he is a spiritual being clothed in a body. Man is thus above the animals; but Helmont declares, against the Pantheists, that man is not essentially one with God. The body is mortal, but the mind is immortal.

Some minor points made by Helmont are of interest. The true knowledge of God is to see things intellectually (*intellectualiter videre*). The soul cannot know itself through reason merely or through images, but only through the recognition that the truth of being (*veritas essentiæ*) and truth of understanding (*veritas intellectus*) are united in all real knowledge. The first of these statements is a good formula for religious experience, while the second expresses the significance of intuitive apprehension: the union of the two anticipates all that Descartes meant by his *cogito ergo sum*.

We pass on to Helmont's physiological teaching. This is a form of chemical physiology. The two principal terms which he introduces are *Gas* and *Blas*, the former being carbon dioxide, the latter a vital force akin to the *archæus* of Paracelsus. In animal organisms the Blas utilizes the ferments, which appealed to Helmont as occult processes of change and a kind of universal life in matter. These ideas were employed by Helmont to explain the process of digestion in which he recognizes six stages. With these we are not concerned until we come to the fifth, in which the blood of the arteries is changed into the vital spirit of the *archæus*, and the sixth in which this *archæus* enables each part of the body to assimilate its nourishment. The vital and the animal spirit Helmont declares to be identical. Thus with Helmont the "nutritive soul" is really a vital principle whose workings are at least analogous to ordinary fermentation.

So far Helmont was a man of science. His more speculative mood is expressed when he deals with the sensitive soul. This is the property of man; strictly speaking, plants and animals have no soul; in man it is the ruling principle, controlling the *archæus* and all the lesser agencies; it acts through the brain and nerves, but its own real seat is in the pylorus, in the orifice of the stomach.

This last idea, as old as Homer and not unknown to the ancient Hebrews, is supported by sundry arguments which need not detain us. It is enough to point out in conclusion that Helmont has greatly helped to give the physiological processes an independent status, that he has elaborately explained the origin and use of "spirits," and has kept the sensitive soul apart from these in a place of its own: while the immortal mind is a pure adjunct wholly unexplained.

Six years after the *Ortus Medicinæ* Glisson produced his theory of "irritability" (1654). It passed unnoticed and we leave it till we come to Haller in the next century. The dominant line of theory goes from Helmont to Willis, whose *Cerebri Anatome* (1664) comes after the death of Descartes. Descartes himself contributed nothing to physiology; he was embedded in the stratum of theories which we are now considering. Willis, though a famous and thriving doctor, was not a genius; his work was a skilful combination of ideas, some of which were his own, some were picked up through intercourse with the greater men of that galaxy which was the first nucleus of the Royal Society. Our interest in Willis is confined to his explanation of sensation and movement and to his significance as a classic representative of his age. Willis upholds the animal spirits in a way that does not differ essentially from the ordinary tradition. While Descartes looked upon the spirits as purely physical, Willis prefers to call them by the older and more ambiguous name of corporeal soul. He divides this soul into two parts, one in the blood and the other in the brain and nervous system. The former is described as a flame: in other words vital processes are a form of combustion. Here Willis scores a point against Descartes' idea that there is an "innate heat" in the heart; Willis more correctly maintains that the heart gets its heat from the blood. Willis had some peculiar ideas about the corporeal soul which he assigned to the brain. He believed it to be a light and even maintained that it was visible; some warm-blooded animals "emit a visible flame or fire at night only." An "ingenious man" told him that "after an extra good bout of wine he could see to read print clearly on a very dark night." This curious symptom may have been one of the facts which

turned Willis to the general subject of sensations, in which he showed a very creditable interest, and he is still handed down to fame as its investigator in the term *Hyperacusis Willisii*. As a neurologist Willis achieved much, and his classification of the cerebral nerves was a work of permanent value; it remained supreme till the close of the eighteenth century. Willis regarded the nerves as solid fibres, not tubes: they are "like cords lightly strung, extended from the brain and its appendages" to all parts of the body. The same nerves function in sensation and motion; in sensation a movement is transmitted from the extremity to the brain; in voluntary movement the brain originates "an impression or impetus" from within outwards. As the animal spirits are not in the nerves (as tubes), they are to be considered as passing along them on their surfaces. In this "Willis may be regarded as dimly striving to explain nervous phenomena on the hypothesis of a specific nervous fluid." This was a change in the physiological theory of sensation, but it produced no fundamental change in the concept either of sensation or volition.

The localization of functions in the brain is thus stated:— "It seems allowable to conceive of the middle regions of the brain constituting an inner chamber of this (corporeal) soul fitted with dioptric mirrors, as with windows. The pictures or images of all sensible things admitted into these secret places by means of the ducts of the nerves, as by means of tubes or narrow openings, first pass through the corpora striata, and then are represented on the corpus callosum as on a whitened wall. And so the things which give rise to sensation induce perception and a certain imagination." By "a second undulation" these images get to the cortex of the brain and give rise to memory, being stored in the folds of the cortex. The image now vanishes; so that the undulation of the cortex is the physiological counterpart of memory.

According as the image is suggestive of good or evil, impulse arises and so the spirits "being excited, look back upon the object" and bestir themselves to remove or retain it.[1]

[1] Quotations from Foster, *Lectures on the History of Physiology*, pp. 270–7.

Willis proposed to explain all the life of animals through this physiological mechanism: the *anima brutorum* is with him quite distinct from the *anima rationalis* of man. He acknowledges that he had not explained how this corporeal soul "perceives that it feels and in accordance with that perception is driven into various passions and actions." It is to his credit that he saw the difficulty of passing from motions mechanically connected to motions selected and directed. In man, he says, "we can readily understand that the rational soul looks upon the images and impressions presented to the rational soul as to a mirror and according to the conceptions and emotions thus derived exercises the acts of reason, judgment and will." Others, however, did not so readily understand that, and the doctrine which Willis expounded was easily developed into a pure materialism. Some eminent men of science (Mayow,[1] Stensen, Lower) did not approve of the vital flame or the "lucid soul." The animal spirits, however, in some form or other, remained a cardinal point of physiology and physiological psychology. Boerhaave (d. 1738) at Leyden discussed the theory and from Boerhaave it went into the mind of La Mettrie to assist his materialism.[2] Toward this Willis made a substantial contribution by his attitude on the question of reflex action. He defined a reflex action as a motion that depends on a preceding sense-stimulus and returns directly to its source, not attaining to any higher levels. He thought that the seat of imagination might be reached by the nerve currents without any change in the reflex character of the resulting movement. Also, in addition to the acquired memory in the cerebrum he recognized a natural memory in the cerebellum, thus giving his adherence to an organic memory distinct from intellectual memory (*Cer. An.* 211). On some points Willis was in error: he held that the ventricles of the brain secrete humours, though this was already disproved by Schneider; he continued the doctrine of spirits, though others (Fernel, Plater) had already questioned it, and the work of Mayow[1] was destined to dissipate the whole

[1] Mayow's nitro-aerian spirits were the first step in the discovery of oxygen. F. Bayle (1622–1709) employed a method of hardening the brain which subserved neurology, as the later methods subserve nineteenth-century progress.

[2] See p. 359.

subject by giving a more adequate account of the chemistry of physiological processes. Yet at the time Willis was a power second to none, and it was largely his influence that kept interest focussed on the decaying problem of the seat of the soul.

Vieussens (1641–1716) devoted considerable attention to the relation between physiological structure and psychological activity. He showed the influence of both Willis and Descartes, for he localized the *sensorium commune* in the corpora striata and the *imaginatio* in the centrum ovale. These parts being closely connected, Vieussens thought he could explain the relation between sensation and thought. In any sensation there are movements propagated to the corpora striata where the sensation as psychic event takes place. The same movement extends to the centrum ovale where the " first imagination " occurs ; in other words, the sensation may be said to be presented in the centrum and every sensation is inevitably united with this kind of *presentation*. This scheme of motions is then used to explain *representation*, where the movements within the centrum ovale explain what might be called centrally excited experiences. These constitute a class of experiences which are essentially representative but have a degree of sensation, due to the fact that the motion extends outward along the course of the original sensation. In this case the objects seem to be actually presented, but with less clearness and intensity than when they cause a sensation.

Claude Perrault (1613–88) was the most important opponent of the Cartesian mechanistic theories. He was a predecessor of Stahl and, according to Haller, a source from whom Stahl borrowed. His chief work, *Essais de Physique*, was published in 1680 and contained a considerable amount of work on sense-perceptions. Perrault did not accept the pineal gland as in any sense a privileged " seat of the soul " ; the soul according to him is connected directly with the whole body and controls all activities, both of movement and sensation. Since thought or consciousness is the essence of the soul, Perrault draws the conclusion that it must have knowledge of all its operations ; the body is not an unknown appendage of the soul but its persistent object. This view

requires for its support the assumption of two kinds of knowledge, the clear knowledge of thought and the obscure knowledge of organic sensation. Perrault explains the genesis of this difference; we pay little attention to what goes on inside, and consequently those operations pass from the sphere of attention to that of habit. All the organic functions are thus the work of a spiritual principle, but have lapsed from the highest apperceptive degree of attention; the heart, now apparently quite mechanical in its action, was once directly controlled by will; and all other movements are, as Hartley said later, secondarily automatic. It is obvious that Perrault approaches from the side of medicine that view of life which Leibniz developed from the basis of metaphysics.

§ 5. In the year in which Descartes died (1660) George Ernest Stahl was born at Anspach. He lived till 1734, so that he belongs primarily to the close of the seventeenth century though his life and work extended well into the eighteenth. Early in the seventeenth century medical science had taken different paths according as it moved in the iatromechanical school of Borelli or the iatrochemical school of François de la Boë (Franciscus Sylvius, distinct from Jacobus Sylvius). Borelli was an admirer of Galileo, and travelled to Florence to see that hero of science. He published mathematical and astronomical works, but the desire of his heart was to write a treatise on animal motion. He achieved this; though the work *De Motu Animalium*, was not published till 1680, after his death. It was preceded in 1664 and in 1667 by the tracts of Nicolas Stensen, a Dane, also known as Steno in Latin. Stensen and Borelli between them refute the idea that spirits or corporeal airs can bring about muscular movement. Borelli approaches very closely to the idea of irritability as resident in the muscles; but that was only fully realized later (by Haller) and the significance of this mechanic of the body lies in its point of view, its method, and its complete antagonism to the doctrine that movement depends entirely on the current of animal spirits (as in Descartes).

Sylvius is of no interest to us except for the fact that his

school produced the doctrine of Stahl. The real beginning is in Van Helmont; Sylvius developed Helmont's chemical theories in a less mystical way; Stahl had more of the imaginative power of Helmont. Stahl maintained that chemical processes in the living body are quite different from the analogous processes (ferments) in things. The reason given for this was that in animal organisms the sensitive soul pervades every part and presides over every operation. Thus the Cartesian idea of the body as a machine is openly opposed; Descartes and Borelli might have been reconciled, but there was no possible reconciliation of Cartesianism and Stahl's doctrine. There is no need to discuss the details of Stahl's physiological chemistry: it is enough to say that he rejected all Helmont's intermediary forces and held to the simple position that spirit and matter are united by motion, that the processes of the animated organism are not all explicable by chemistry, and that the sensitive soul must be brought in to make our theory of life complete. This theory, the new animism, has a long history and will be met again later.

An important result of Stahl's general theory was the closer connection it established between psychology and medicine, and the consequent tendency to pay greater attention to psychic factors in explaining abnormal conditions of the individual. Stahl maintains that the soul builds the body; diseases are processes by which the soul strives to remove what hinders its operations. Diseases of the soul are abnormal conditions which arise when the normal activities are hindered by obstructing factors, described as due either to the nerves or the feelings. Thus Stahl begins to lay proper emphasis on those mental derangements which arise from the passions, distinguishing between the effects due to physical disposition and those which arise from the operations of the soul, as (for example) the working of the imagination. Stahl supports his position by many acute observations: the sight of food makes the mouth water; a mere association of ideas can change liking into disgust and produce actual vomiting; the mere thought of a medicine sets up contractions in the stomach. These facts prove the direct action of the immaterial vital principle

on the material organism. To this action Stahl set no limits, making digestion and circulation dependent on the purposive action of the soul. Such extreme views were not capable of actual proof, and they brought discredit on the more acceptable parts of the theory, counteracting the effects of Stahl's refutation of the Cartesian mechanical standpoint. But for this the animistic view might have had more success, since its rejection of animal spirits, its opposition to all intermediation between soul and body, and its recognition of a simple action of mind on body by the production of motions in the organism, were all valuable contributions to a sounder psycho-physical position.

CHAPTER II

SYSTEMATIC THOUGHT: DESCARTES

§ 1. As the sixteenth century drew to a close the changes already made in the existing system of knowledge were summed up in a decisive revolution. Réné Descartes was born in 1596. He was educated in the Jesuit College of La Flèche, but his early training in that institution did not prevent him from acquiring the sceptical mood which the prevailing disagreement among theorists had made almost a fashion. In the history of psychology Descartes inaugurates a new era, not merely because he restated many old views and united in a novel manner the results reached by philosophers and physiologists, but first and foremost because he was gifted with the power of actually experiencing the new freedom of thought. When others were acquiring traditional formulæ Descartes was living again through those primitive efforts of the mind by which sciences were first created. Apart altogether from considerations of doctrine and the inquiries which can so easily show where this or that opinion had a prototype, the work of Descartes must be counted truly original for wholly different reasons. Nothing that may be said, and must be said, to show how thoroughly Descartes was steeped in the thought of his contemporaries and the tradition of mediævalism, should be allowed to obscure the fact of supreme importance. That fact was the recognition that the very existence of truth depends on the effort to make ideas clear; the thinker must experience the connection and unity which he asserts; the spirit which upheld the motto *credo quia absurdum* must be for ever abandoned. As the embodiment of this new gospel of intellectual sincerity Descartes' *Meditations* may be classed with Augustine's *Confessions*. A general resemblance between

these two has been often noticed, but attention has been misdirected to similarities of expression. More important than such literary coincidences is the profound fact that Augustine brought to an end the effective philosophy of the ancient world by retiring into the sanctuary of the heart. Descartes inaugurated the effective reunion of the inner and the outer worlds, the world of introspection and the world of scientific prediction, by going forth from the inmost chambers of the intellect to the boundaries of its new domains.

It is necessary to begin with the recognition of this new spirit, for when we turn to consider the detail of the Cartesian theories there is a very evident overlapping of old and new material. As the new spirit won adherents, the new material also became subject to approval or disapproval, and men argued for or against what they regarded as the Cartesian system. Then flaws began to appear; dogmatism was evident where it was least to be expected; rash conjectures and even compromises seemed to form the actual foundations of a system that was supposedly based only on the clearness of the self-evident. To separate the good from the bad is more possible now than in the seventeenth century: the development of the Cartesian system (if there ever was one) and the subsequent criticism will now be followed, that both virtues and defects may be seen in their right proportions.

One of the distinctions which by its clearness seemed fitted to support the whole fabric of thought was the distinction between mind and matter. In the limited sphere of human nature this is equivalent to the distinction between mind and body. One part of our subject will therefore be the nature and functions of the material organism.

In physiology Descartes had the advantage of coming after Vesalius and being acquainted with the discovery of Harvey. He studied anatomy and made dissections for himself, but where he differed from the physiologists he was usually wrong; his strength lay in his readiness to adopt the results reached by others. In the sphere of physiology everything seemed to point to self-explanatory processes. The circulation of the blood was a mechanical process requiring for its explanation only the matter and the motion

of the heart. Descartes showed his natural inclination by trying to make this motion dependent on the heat in the heart, a divergence from facts which revealed how much Descartes could sacrifice strict scientific procedure to imaginary systematization. Digestion, too, was now explained by the chemical properties of secretions; science no longer favoured any special faculty of digestion. Over and above these genuine contributions to the view of man as a machine, there was the fact that mechanical models were among the wonders of the age. Descartes was greatly impressed by the clock-work structures which were to be seen at Nurnberg and elsewhere. The gardens of the aristocracy were adorned with fountains so constructed that the water running in the tubes would move mannikins, play instruments, or even produce sounds like words uttered by lay-figures. Descartes saw an analogy between these water-pipes and the "tubes" in which he thought the spirits moved; the absence of voluntary action was evident in the case of the statues, and this was paralleled by the fact that movements of the body are also frequently executed without conscious intentions. Thus Descartes arrived at the *undulatio reflexa*, the action unaccompanied by will, for which he has been described as author of the theory of "reflex action." We may give Descartes credit for recognizing that all movements are not supervised by a will-to-move, and possibly for some knowledge of the fact that movements are performed by decapitated animals. But it is very necessary to remember that the *undulatio reflexa* of Descartes was essentially a mere rebound of particles, a mere ingoing and outcoming of an actual stream of subtle matter. In the language of the nineteenth century "reflex action" means a co-ordination of centres with a considerable degree of integration—all of which was not considered until the latter part of the eighteenth century. Much of the confusion which seems prevalent in accounts of the reflex-action theory is due to not recognizing the difference between Cartesian theories and later physiological observations. Descartes was primarily interested in the analogy between mechanical and physiological action; he saw only the points of resemblance between reflection of light, reflux of water, and reflex action. The

modern neurologist would see chiefly the absence of resemblance.

§ 2. Though Descartes did not produce a formal system like those of the scholastics, he intended to include in his work all the standard topics. He would have treated the cosmos as a whole if his work had been completed, beginning from stones and metals, and ending in man and God. The familiar lines of the ordinary system are only obscured by the absence of the familiar terms and rubrics. It is from the general consideration of the cosmos that we come to man, and the objective science of man or anthropology is the background of psychology. The body is part of the world of matter, it is a certain portion of matter peculiar to a man. As matter it may be dealt with scientifically, which, for Descartes, means mechanically. The soul does not move the body, nor is it the principle of life; death is not due to the absence of the soul from the body, but when the bodily functions cease the soul withdraws. Thus, in opposition to earlier views, Descartes removes from the concept of the soul every part of the concept of physical life. Physical life is essentially movement, which depends on the muscles, and these in turn depend on the nerves. The corporeal principle of movement is a kind of fire, a natural heat which resides in the heart. This internal heat causes the blood to circulate; it also produces by rarefaction a kind of quintessence of the blood, the subtle airs called animal spirits. "These animal spirits consist of the finest particles contained in the blood, which are filtered from the arteries through minute pores into the central cavity or ventricle of the brain. From this ventricle they pass into the nerves, and, by flowing down the motor nerves and from them into the muscles, they cause the latter to become distended laterally, and therefore to shorten and so bring about the movements of the parts of the body. According to Descartes' scheme of the nervous system, the motor nerves open from the ventricle of the brain by valved mouths; the sensory nerves also have their central terminations in the ventricle, each being connected with the valve of the motor nerves; when, then, any impression is made on

a sense-organ, the sensory nerve affected plays the part of a bell-wire, it pulls open the valve to which it is attached and so allows the animal spirits to flow down the corresponding motor nerve and to bring about the appropriate reflex movement." Though it has now only historical interest, this scheme has been stated in the words of Professor McDougall (*Body and Mind*, p. 51) at some length because it was destined to form the basis of nearly all the physiological psychology which the seventeenth and eighteenth centuries produced. It affords a proper understanding of the way in which Descartes understood the relation of the soul to the body, for if the soul is in some sense present to this machinery at the critical point of transmission from sensory to motor channels there is ground for asserting that the soul may direct the movement of the animal spirits and make possible the required development from action to conduct when our philosopher is called upon to explain his ethics.

In accordance with the original Aristotelian scheme Descartes recognizes two levels of conscious activity: the soul thinks, remembers, and wills by itself, while its union with the body makes possible the sensuous operations of the common sense, imagination, and instinct. As the principal "seat of the soul" Descartes selected the pineal gland. This selection was peculiarly unfortunate from a physiological standpoint, and we can hardly doubt that the quality which recommended it to Descartes was the uniqueness of this gland, and that in this uniqueness Descartes found the physical counterpart of conscious unity. In mitigation of this disparaging explanation there is the possibility that Descartes was merely following a fashion; apparently as early as 1641 a certain Jean Cousin discussed in a "thesis" the question, *An κωνάριον sensus communis sedes?* A thesis is usually a symptom of some popularity attaching to its subject.

The senses were divided by Descartes into two classes, the outer and the inner. The outer senses are the usual five senses, touch, taste, smell, hearing, and vision. On these Descartes has nothing essentially new to say, with the possible exception of vision, which is treated primarily from the point

of view of dioptrics. The essential features are the same in all the modes of sensation, for they all express a relation of the three factors, sensitive soul (*anima sentiens*),.external object and intervening nerves. The objects are, for Descartes, constituted by the union of extension with motion, so that the relation of each object to the body is a relation of co-extension and motion. The motion is transmitted from the outer to the inner extremity of the nerve, and from the inner movement we derive all the effects called sensations. The transition here made from quantity of movement to quality of effect was not made by Descartes in ignorance of the difficulties. To remove the obstacles no means were available except that form of procrastination which works by intermediaries; the movement of the nerves was said to produce upon the pineal gland an impression, such as a seal might make on wax, and by this impression the soul was stimulated to produce an idea. At the last critical point, then, Descartes falls back on traditional metaphors. He thinks, indeed, that motion in the physical world is identical with activity in the spiritual, and therefore the transition from the last motion to the adjacent (?) activity is not really a leap, or at any rate the *saltus* is (in the scientific sense) "negligible." The new scheme, if inadequate at this point, had the merit of simplifying matters by dropping the old view that a picture *like* the object was deposited in the brain. For "likeness" must be substituted a very attenuated conception of "correspondence." As all motions, in terms of situation and velocity, are pure quantities, Descartes saw that the qualitative differences of sensations there not properly explained by his principles. For this there was no cure except to begin again from the other end and throw the burden on the "nature of the soul."

All the senses are forms of touch, as Aristotle had said: but they have distinctive characteristics. Touch itself usually seems easy to explain and many are deceived by the apparent ease. Vision, on the contrary, seems extraordinarily difficult: the object is more or less distant, the organ exceptionally refined, the results exquisite and mysterious. The difficulty of passing from motion to sensation is here most distinctly comprehended, and consequently the powers

of the theorist are here most severely taxed. The primary objects of vision are light and colour; as secondary objects Descartes enumerated position, distance, size and form. Sight is dependent upon three things—object, inner organ (nerve and brain), and outer organ (transparent parts of the eye, etc.). Assisted by the advances made during the century, Descartes was able to give a rational account of the physical and physiological conditions of vision. Light is a motion transmitted from a luminous body in straight lines through the air or other transparent bodies to the eye. (*Dioptr.*, i. 6). As light is purely motion, not (as the corpuscular theory maintained) minute particles of matter in motion, Descartes thought that the transmission of light was instantaneous: the thrill or vibration of the luminiferous substance occurs simultaneously at all points, as the jerk given to a taut line takes effect simultaneously at both ends. This and the corresponding view that the movement of the nerves is propagated instantaneously were alike erroneous, but the error did not affect the most valuable part of the conclusion, namely that vision depends on the communication of a motion originating outside the eye to the optic nerve and its inner terminus. For this the formula is: *Actionis vis ex objectis visus emanans ad oculos nostros diffunditur.* (*Dioptr.*, i. 5). The result of the physical and physiological processes is an image of the object, but the image is not itself the vision nor is it even what is seen. The *actionis vis ex objectis* requires as its complement another *vis* which is the innate power of the eye and goes forth from it to the objects: *quæ oculis innata ad illa pergit* (*Dioptr.*, i. 5). Here Descartes is once more face to face with the central problem and compelled to justify his claim to superiority over the mediæval doctors. In one respect that superiority is manifest: there is more economy of thought in Descartes' exposition of sense-processes, and therefore a superiority of method. A passage like the following is decisive: *licet autem hæc pictura, sic transmissa in cerebrum, semper aliquid similitudinis ex objectis, a quibus venit, retineat, non tamen ob id credendum est, ut supra monuimus* (*Dioptr.*, c. iv), *hanc similitudinem esse, quæ facit, ut illa sentiamus, quasi denuo alii quidam oculi in cerebro nostro forent, quibus illam*

contemplari possemus. We need not stop to inquire who held this "representative image" theory: it is enough that its nature is here fully exposed and adequately refuted. As a consequence all problems of light, colour, and visual space are made subjective, since they are effects which can only be produced in the sensitive soul. Perception of distance was explained by Descartes as dependent on *mutuam quandam conspirationem oculorum* (*Dioptr.*, vi. 11, 13); the inversion of the retinal image was negligible, for the image was not the object of vision; thus in some degree Descartes comprehended the significance of accommodation of the eye and the symbolic character which sensations have in their relation to the total experience of the individual.

The Cartesian dualism penetrates to the uttermost limit of things. In sensation there is the dualism of *motus* and *idea*, the content and the form (*Dioptr.* c. vi. a 2). This idea is the *idea materialis* of later writers, described (*De Hom.*, a 70) as a figure traced by the spirits on the surface of the pineal gland. When the soul is united with this machine (that is, when it is attentive) it produces a spiritual idea corresponding to the material idea, and this is the function called imagination. There are then three degrees of organic activity: there is outer perception, there is the inner perception of material ideas, and finally the inner perception of pure ideas. This scheme does not realize the expectations aroused by the vigour with which Descartes began; there is an obvious lapse into formalism. Similarly the *sensus interni* are grouped and arranged in an artificial manner. A distinction is first made between natural appetites and "passions." The former comprehend all affections of those nerves which extend to the stomach, *œsophagus* and adjacent parts: these are principally hunger and thirst, though Descartes includes in the same category feelings of pain, irritation and general "tone," since these too are perceived by the soul as being inside rather than outside. This is the link which connects these appetites with the passions. To the latter Descartes gave much attention, and we must return to the subject later. Before leaving the classification of the organic activities, which so far has included outer sense, imagination, and inner sense, some account should be given

of the activities which belong to the soul itself. If we think only of the soul, the outer and inner senses are to be called "passions," since in them the action of the soul is always aroused and determined by objects. Then the activities of the soul are forms of ideation, and we find in this class the familiar doctrines of active imagination, memory and recollection, and finally the highest operations of reason. On these topics Descartes offered no views that were superior to those of Aristotle or Augustine.

§ 3. One cardinal feature in the work of Descartes is the definition of the mind as essentially a thinking thing, *res cogitans*. Upon this basis, remembering that the mind is a substance, we expect to hear what it is that the mind thinks. This question Descartes undertakes to answer by a method which is partly introspective, partly dogmatic and scholastic. He asserts, dogmatically, that the mind can function without the aid of the brain. "I have often shown," he says, "that the mind can work independently of the brain; for clearly there can be no use of the brain for pure intelligence, but only for imagination and sensation" (*Med.*, ii. Resp. quint. ad obj. 3). This is a clear statement that the mind has activities that are nothing but its own motions, the *actus purus* of earlier writers. The operations of the mind when it thinks are ideas; so the pure activities will be ideas that have no dependence upon the world of objects either for their origin or for their truth. These are the so-called innate ideas. As these ideas do not originate from causes external to us, they arise in the form of memories, and experience is only the occasion for our consciousness of their existence. This view of the innate is as old as Plato, and Descartes seems to have adopted this theory at first without much serious reflection. But objections and criticisms quickly caused him to shift his ground. He declared that he meant by innate ideas no more than an indefinite potentiality of thought: the ideas exist only potentially and become actual in the process of experience. But this later position is equally full of difficulties for Descartes. It is excluded from the beginning by his idea of substance: the mind is not merely the sum of possible ideas; it is a

thing, and that fact haunts Descartes to the end. After having once said it, Descartes strove earnestly to unsay it in every way except by open recantation. The goal at which he was aiming was the complete separation of all mental processes from physical processes. He felt, as Plato and Aristotle had felt, that the physical events preceding consciousness of an object never actually explain the consciousness; whether we think of universal ideas or particular ideas, the idea as such is a fact of consciousness and nothing if not that. So in spite of many partial contradictions and many changes of front, it seems correct to say that Descartes' "innate ideas" amount ultimately to no more than this assertion of independent reality, crossed and confused by the use of the scholastic formulæ of substance. This view is strongly supported by the attempt at a catalogue of innate ideas which Descartes was led to make.

Believing in the self-evidence of consciousness and inclined to be introspective, Descartes naturally finds such notions as those of God and the self most distinctly innate. They seem to be in the mind; they are not adventitious, as is the idea of an object like the sun; they are not made up out of separable elements as are the ideas of centaurs and hippogriffs. A feeling of certainty and inevitableness belongs to them, and Descartes by a "spontaneous impulse" writes them down as ultimate, underivable, and eternally true. On further reflection he finds many other ideas that can claim to be innate for the same reasons. The axioms of mathematics have a longstanding claim to be called innate; the ideas of figures, such as the circle, are ideas that have no real external counterpart, for the *absolute* circle is not given us in experience; space, time, motion and all the primary qualities depend more on mind than on outer perception; in fact ultimately *everything* depends on mind in so far as it is an idea and not a thing.

The general statement of the nature of innate ideas, as made by Descartes, leads to the specific question of the relation between ideas and images. The current theory of perception postulated three terms, an object, an image of the object, and an idea or mental grasp of the image. This scheme implies a universe of objects reproduced in a universe

of thought; Descartes rejects that scheme and is then driven back on the problem of the ideas as effects of some agency. If the idea is not an effect of the object it must be an effect of the subject, a product of subjective activity. In the second case, the producer is at the same time the product, and the idea is no more than a state of consciousness (*modus cogitandi*). But the actual distinction of image and idea is still untouched; it will be necessary either to deny the distinction or reinterpret the subjective activity. Descartes chooses the latter course. Ideas are classed by him as (*a*) innate, (*b*) adventitious, i.e. dependent on external conditions, and (*c*) made by the mind (factitious, complex ideas of imaginary objects). As ideas these are all mental; as images they are presented with the concurrent help of the body. The distinction between the image and the idea depends therefore on the part played by the body. The image has the peculiarity of being apparently corporeal; if that means that it is a physical event, we are no farther advanced, for the image remains on the other side of the gulf between matter and mind; similarly, if an image is truly mental, why is it distinct from the idea? Descartes sees vaguely that a pure introspective analysis of mind cannot find any distinction between image and idea. The later scholastic position, that an idea may be real without having a corresponding reality to depend upon, has developed in Descartes to a grasp of the fact that all inner states are on the same level psychologically. But the problems which belong to the theory of knowledge corrupt this insight. Descartes persists in thinking that the idea of a centaur would be changed if some real centaur came into existence; he also thought (after Anselm and before Kant) that the idea of God was (as mere idea) dependent on the existence of God. Overlooking this confusion we may credit Descartes with a grasp of the fact that ideas cannot be both inside and outside the mind; consciousness is pure immediacy. To be "in the mind" is nothing else than to be a phase or aspect of mental life. Next to the mind comes the brain, and the image, if it is more than the idea, is a brain process. In this way Descartes works out a dualism different from that of external object and internal image. The object and the

image are for him alike corporeal; the idea and the concept are mental. To the passage quoted above in which Descartes says the brain is needed only for imagination or sentiency, we may add another explicit statement: "no corporeal species is received in the mind; pure thinking is performed without any corporeal species; imagination, however, which can only arise in the case of corporeal things, needs species, which is a truly corporeal thing; to this the mind applies itself, though the species is not received into the mind." The language is scholastic, but the point is new, namely that brain processes are no more than conditions of mental processes. Whether Descartes was right in saying that there are any mental processes not dependent on brain-process and whether he rightly understood the relation of image and idea, remains to be seen.

Descartes did not say all this in one place or at one time, but a comparison of his various statements shows that he vacillated between two distinct positions. At one time he thought of the innate ideas as a "very few" divinely implanted possessions of the thinking substance. At another time he clung to the unassailable position that thought is thought, a bare affirmation that served to mark him off from any encroachments of materialism. As a development of this affirmation he was prepared to say that he never meant by "innate ideas" [1] anything more than the potentiality of thought and that the modes of thought included all the contents of consciousness, sensations, perceptions, judgments, and intuitions. As this was the point which Descartes reached in the later writings we must accept it as his real teaching. It is clear that he denied any materialistic tendency in his teaching; it is also clear that his objections to materialism were rooted in his nature, for he was a rationalist at heart, a scholastic by early training, and tempered his pursuit of physiology with a liberal amount of mysticism and theology. The occasional use of such terms as *notiones communes* suggests the Stoic element in Descartes' education; we know how popular those doctrines were at the time, and it is probable

[1] Descartes speaks of *ideæ* as *innatæ, ingenitæ, insitæ*. Also simply as ideas which are in our mind or which we have.

that they greatly influenced Descartes; but the form in which Descartes states his views seems to show that they were not consciously adopted from any school.

§ 4. The two factors, mind and body, have now been treated as distinct. It remains to see what Descartes said about the organism as a living unity of opposites. This part of his teaching is comprised under the term Passions of the Soul; it is the psycho-physical part of the whole system.

The term passion denotes a change or affection in a thing which does not arise from the thing itself. In the case of the soul it will include all the phases of conscious life which are dependent on the action of agencies external to the soul. Thus the sensations are passions; the lower form of memory, the mere retentiveness, is a passion; Descartes goes so far as to say that *all* forms of knowledge are passions. By thus including under the "passions" perceptions, feelings, emotions, and the processes of induction and reasoning, Descartes shows that he intends really to oppose the will to the intellect. The soul is active only in volition, which includes attention, recollection, and phantasia (cp. p. 205); in cognition it is passive. Descartes retains the belief that truth belongs to those ideas that correctly represent their sources, the objects. If the will intrudes, it can only assent to the necessary connexion of ideas; otherwise it perverts the truth into error.

The doctrine of the passions depends upon the idea of spirits. All passions originate in the sensations. When Descartes defines the term further he distinguishes the emotions from sensations and from volitions. Sensations are passions which we refer to external objects, e.g. smells, sounds, colours. Volitions are emotions which arise from and are caused by the soul itself. So Descartes finally means by passions those inner states which are states of consciousness, but at the same time have their real cause in the agitation of the spirits. They are both inner states, with no external counterpart, and intermediate states, neither wholly physical nor wholly psychic. They are determined from without and from within. The exciting

cause, e.g. of hate, moves the animal spirits, but the nature of the individual's character modifies the nature of the passion through the brain. The brain being the chief seat of the soul, the two activities meet at that point. In this way the will or activity of the soul has the power of modifying the passions and changing their psychic values. Every passion has an inner and an outer phase. The natural disposition is the inner phase; the object which stimulates to action in accordance with this disposition is the other phase. Education produces character or fixed dispositions, so that the doctrine of the passions leads into the doctrine of conduct or ethics. The training of the will and the control of the passions thus form the psychological part of Descartes' ethical reflections.

To complete the psycho-physical part of the doctrine it is necessary to note that Descartes makes the brain the seat of the passions. This is directly opposed to the view that they should be localized in the heart. The heart is usually affected and all passions are accompanied by a feeling in the heart and in the blood. This is a secondary effect due to the close connexion of the animal spirits with the blood; it is a subordinate physical quality of the passions. If the passions were purely an affair of the heart and the blood they would not be subject to control through the will. That they are capable of such control and that the mind has the power of changing their nature is a cardinal point steadily developed by later Cartesians. Descartes himself roundly declares that conduct is ruled by thought; good judgment suffices to produce good action. The Socratic phrase is repeated, *omnis peccans est ignorans* (*Ep.*, i. 110), and no sign is given by Descartes to show that he wished to modify the strict interpretation of this. Socrates may have meant by "knowledge" a complete state of conviction; but Descartes does not show any inclination to adopt what would be a correct but tautologous formula for action.

Two points deserve notice. First, that ideas and feelings tend to be associated. In the *Passions* (ii. 107) Descartes says, "when we have once joined some corporeal action with a thought the one never presents itself afterwards without the other also presenting itself." This implies both the

recall of feelings and the general principle of association. The education of character is achieved by causing a union between feelings and ideas, so that they are ever afterwards united. Secondly, Descartes gives attention to the purely physical side of emotions and explains them as primarily intended to secure suitable responses to given conditions. The sight of an animal is a perception to which is added immediately the emotion of fear with consequent tendency to flight or to self-defence. This process does not involve the intellect; the passions do not proceed from reason or will; the full perception of our own mental state is rather the effect than the cause of the bodily adjustments. This looks like an anticipation of the James-Lange theory; it has the same tendency to put the physiological process before the developed emotion; but in origin and nature it is probably a way of saying that Providence gives us instinctive emotions. Descartes believed in pre-natal emotions as well as innate ideas, deriving them probably from reminiscences of the Stoic doctrines.

§ 5. The reader has probably concluded, long before this, that there is no unity in the doctrines of Descartes. The fact is obvious. The only task that remains is to distinguish and identify the various lines of thought that here converge.

At one extreme we have a purely rationalistic element The essence of mind is thought, and the fact that some ideas are declared innate makes the doctrines of Descartes a spiritualistic psychology. Here we have a continuation of pure scholasticism. At the other extreme we have a naturalistic element. Apart from the innate ideas, the content of consciousness is furnished from the body through the passions; this is an empirical element, though not in Descartes a materialistic tendency. The sharp definition of the extremes leads to a continual insertion of intermediary factors. Between soul and body come the spirits which are undeniably Stoic in origin and mark the persistence of the theories handed down from Galen. The Stoic doctrine was known to Descartes, for he mentions Zeno and Seneca; but even without this direct evidence it is obvious that the

ethical part of the writings of Descartes is thoroughly Stoic and shows the influence of contemporary revivals of Stoicism. The monism of the early Stoics is not acceptable to Descartes; he is more closely allied to the later Platonizing Stoics, both in his ethical views and in his treatment of the soul as distinct from the body. Cicero probably exerted some influence on his mind, and his phrases occasionally recall the language of Epictetus. The dualism which he maintains is primarily scholastic and so, indirectly, Aristotelian. It is not correct to say that Descartes "had defined mind, in opposition to Aristotle, as exclusively thinking substance."[1] Aristotle never supposed that mind as such was anything more than a principle of thought. In fact, Descartes and Aristotle are remarkably alike. They both start from a basis of natural philosophy; they both regard sensation as a matter for empirical treatment and value sensations and emotions as primarily the data of the natural life. Descartes agrees with Aristotle in dividing the psychic activities into two classes. One class includes sensation, retention, and the processes of discursive thought. The other includes the activities of the soul which seem to be peculiarly its own, those which Aristotle assigned to reason (νοῦς). Descartes' definition of soul corresponds to Aristotle's idea of the reason; both come in from without, furnish the ultimate principles of thought, and may be considered apart from the composite human nature. The mind is for Descartes what the reason was for Aristotle. The two part company most clearly on the question of the *soul*, not the mind. What Aristotle would have described in terms of a principle of life, Descartes attempts to describe mechanically. It is very doubtful whether Descartes had the advantage in that point. He disentangled himself from the meshes of contemporary Aristotelianism; he broke away from the mere repetition of words without meaning; but in all that he was acquiring for himself a grasp of the truth which had been lost with the decay of Greek civilization. As time progresses it becomes more certain that Aristotle's concept of the organism must be preferred to the Cartesian machine and operator.

[1] Wundt, *Human and Animal Psychology*, E. Tr. p. 3 (1896).

§ 6. There is a curious passage in the history of Descartes' mind which deserves to be studied for the light it throws on the development of thought at this critical point. The passage in question relates to the notion that animals are machines, a very natural and sensible idea if rightly understood; since Huxley has taken it under his protection we need not labour the point but give a brief account of Descartes' own views and then indicate the real importance which belongs to the topic.

It had been customary from the time of Aristotle to distinguish three uses of the word soul and three grades of being, namely plants, animals, men. Since Descartes proposed to confine the term soul to reason, the question whether animals have souls can only be taken to mean: Have animals a rational soul? As Descartes had also declared the human body to be a machine, and everyone agreed that man was a rational animal, the most elementary logic could show that an animal was wholly what man was in part, to wit a body, and therefore a machine. So far the point is clear, but Descartes was not quite sure what his own statements meant. At first he was content to treat animals as machines: he was at that time fresh from the pursuit of physiology and also very much inclined to regard machinery as the true type of self-explanatory causation. In his eagerness to be rid of all occult causes he was ready to disregard some obvious facts. At this period he could see no distinction between a sound organism and a perfect clock. But as time went on these impulses grew weaker. The force of analogy began to assert itself. He hinted at the possibility of a different principle, the instinct. While he began by speaking of animals as mere machines, he ended with the much more moderate statement that it was not possible to prove they could think. In the interval between his earliest and his latest views he grants that these organisms may have sensations and a kind of consciousness which does not amount to thought. In general his position is that reason in the proper sense is peculiar to the human mind. In human life there are many actions that do not come into consciousness; they are reflex activities which the organism carries out without the intervention of mind. These are operations

of our animal nature, our bodies as machines. The human and the animal world overlap at this point. Instead of saying with the Scholastics, that the vegetative and sensitive souls are merged in the rational soul as the higher form, Descartes regards the human body as an animal organism united with a rational soul. Animals can then be regarded as bodies only, and this is the point which Descartes never wholly abandons. If he goes so far as to suppose that some obscure sensations accompany its operations, it is because his idea of body develops into the idea of an organism which acts as if it had psychic qualities.

Fundamentally, then, we may regard this much disputed proposition, animals are automatic, i.e. self-contained, machines as merely a forcible way of eliminating animism from physiology. But apart from the mere statement of the view, there is the question of its historical place and significance. It is not a question of animal psychology at all, for it is concerned neither with animals nor with psychology, except in that wide sense in which the human being can be called simply an animal. Even the disciples of Descartes saw that the consequences were important, and there can be no doubt that Henry More hit the mark when he said that the whole idea arose from the prejudice against giving animals a claim to immortality. There can be no doubt, too, that this was not all. Descartes disliked the sentimental attitude toward animals: he rightly thought the popular ideas about their powers were gross exaggerations: he lived in close enough contact with the beliefs about human souls taking up their abode in animal bodies to feel the immense advantage of a more scientific view of the matter. Yet even here he blundered, for his sharp distinction between soul and body made it more than ever possible to regard the body as a place occupied by a soul, and so reduced the possible objections against its dwelling in all and every kind of body. Descartes, in fact, lost his way, believing as he did that moral qualities belonged only to men and that no one could prove animals to be reflective moral beings. Proofs might indeed be wanting, but statements were abundant. Apart from Pliny, who counted religion among the moral virtues of elephants and endorsed the ancient idea that those animals lifted up

their trunks in prayer, Lactantius had been generous enough to ascribe morality, without religion, to animals. Omitting Porphyry, whose influence had waned many centuries before, and the queer stories which supplied the place of earnest inquiry for the whole period of the Middle Ages, we find Rorarius (1554) maintaining that animals have reason and make a better use of it than man. In the same year Gomez Pereira, in a book called *Antoniana Margarita*, had upheld a similar position, the source of which can easily be traced to the Stoic idea of instinct, that natural faculty in all created things which operates undisturbed when the reason does not interfere with its promptings. Thus for a century before Descartes there had been a distinct tendency to dispute the primacy of man even in the moral sphere. It was argued that if man was made in the likeness of God, but had defaced that likeness by his arbitrary choice of evil and his fall from grace, the animals (having no such freedom of will) preserved what Cicero had called their uncorrupted nature; they are either created evil or not evil at all.

The tide of opinion was turning against man. The reason for this is to be sought in the whole change which came over the dream of human perfectibility. The end and aim of knowledge had for long been put in the world above; its significance had not been of this world. Hobbes, the contemporary of Descartes, following in the steps of Macchiavelli and of Bacon, states abruptly the opposite point of view: for these men knowledge was power, the peculiar power of the human being by which he could devise more cunningly than other animals, by which he could secure advantages for himself and satisfy desire. The intellect that invented gunpowder was not amenable to the old definitions: it was a new variety, and these writers believed in adapting their definitions to the facts. The curious inquirer could find in Hobbes the curt remark that speech enables a man to utter what he does not think, that it leads him to deceive, and so "by discourse man is not made better, but more powerful." He might go further back still and produce from Paracelsus some bold statements that could only have escaped notice through being regarded as utter insanity. The discovery of America gave trouble, and some dispute

arose as to the origin of the American Indians. The authorities boldly ruled in 1512 that they were descended from Adam and Eve. In 1520 Paracelsus declared that there had been another Adam, as if there could have been two first men! He delivered himself further as follows: "It cannot be proved that the men who inhabit the hidden countries are descended from Adam: but it is credible that they were born there after the deluge: and perhaps they have no souls. In speech they are like parrots and have no souls unless God be pleased to join them in the bonds of matrimony with those who have souls." We are left in no doubt about the intention of Paracelsus to write a new account of the origin of man, for he says explicitly that Moses wrote theologically and according to the faith, but was not acquainted with natural science. Further in 1616 Vanini suggested that man was originally a quadruped: Vanini was burned. In 1665 Peyrere talked about Pre-Adamites [1] and in the same year a work was published anonymously in English, which seems to be the beginning of the history of the word Anthropologie in the English language. In this book Anthropology is divided into Psychology and Anatomy, and the writer announces that "of the former we shall in a distracted rehearsal deliver our collections." In 1677 Matthew Hale discussed the primitive origin of man, and from that time onwards a series of works on comparative anatomy, on pygmies, and on other allied topics prepared the way for the appearance in 1735 of Linnè's *Systema Naturæ*, where we find man treated zoologically.

These few dates and titles show how the teaching of Descartes about animals comes midway in the development of a large theme. The focus of interest was man and the question at issue was not so much the scientific analysis of animal behaviour as the adjustment of man, now declared to be in part a machine, in his relation to animals. The issue of the discussion was finally that which Descartes vaguely indicated, namely that as body man belongs to the animal kingdom, as mind he belongs to another realm. While Descartes confused the subject by treating this other realm

[1] Isaac de La Peyrere (1594–1676) Prae Adamitæ, sive exercitatio super versibus 12, 13, 14 capitis V. Ep. D. Pauli ad Romanos.

as sometimes merely psychological, sometimes ambiguously spiritual, the sequel shows that it was possible to advance from his position to a general theory of man divided into physiology and psychology.

Whatever may be said of previous suggestions it was the work of Descartes to give wider significance to the question of automatism. His followers and defenders saw this aspect of the problem, and the consequent ventilation of his views brought to light many interesting points. Ignatius Gaston Pardies (*Discours de la Connaissance des Bêtes*, 1672) and a certain A. Dilly, author of a work on the soul of animals, published at Amsterdam 1691, were the chief writers concerned. Dilly argues that the growth of the embryo precedes consciousness, that movements easily become automatic, that somnambulists act unconsciously, that speech and the playing of instruments are systems of movements which depend solely on the nature and disposition of the organs. Pardies argued that it was simpler to explain the lamb's fear of the wolf through some automatic principle than to suppose the animal first learned to think the wolf could harm it. The theologians were attacked in flank by the assertion that it was more creditable to the Divine Wisdom to create an organism that automatically preserved itself than to complicate matters by adding consciousness. Regius declared that the education of animals was achieved by repetition of acts which produced new dispositions of the brain substance and so caused a regular flow of spirits to certain muscles. The same writer fell back on the early physiology of the emotions and explained the love of the animals by the temperature of the blood; the presence of the agreeable object causes physiological changes affecting the heart, while danger produces movement through affecting the spleen and the gall. Pardies further quoted the irrational fears of human beings, as, for example, the effect of a mouse on the feelings of a woman. In short, the whole movement, though curious in its focus and interests, produced a considerable amount of able writing which is closely akin in its results to the good and bad points of the later attempts to show how far consciousness is an epiphenomenon. Pardies clearly was not far from the views on emotions afterwards made popular by the James-Lange theory.

CHAPTER III

SYSTEMATIC THOUGHT—*continued.*

§ 1. In his views of man, and especially in that part which concerns the soul, Descartes belongs to the last phase of the mediæval tradition. He belongs to it by reason of his preoccupation with questions that should have been excluded and also by reason of his reliance on ancient theories, particularly Stoicism. Emancipation from the tendency to regard man as a fragment of a divine substance enclosed in another substance not divine was hardly likely to come from the Stoic mode of thinking. Those who had other ideas on the subject were inclined to favour Democritus in their physics and Epicurus in their philosophy of mind and conduct. To this class belonged Gassendi and Hobbes, two great contemporaries of Descartes, who form an interesting complement to his influence in the seventeenth and eighteenth centuries.

Gassendi belongs to the old school of writers, the producers of comprehensive encyclopædias. His life was comparatively uneventful, the peaceful life of the studious priest who was known and respected as a mathematician, a scholar and a philosopher. His work was a careful and very sane compilation of teachings guaranteed by the quotation of numerous authorities and marked only by one striking peculiarity, the respect paid to Epicurus. Since the ninth century Epicurus had gone out of favour, incurring more and more of the odour of unsanctity. To revive his teaching was therefore a bold step, but it was taken by Gassendi very cautiously. In his psychology there is very little to show Gassendi's divergence from the more popular and respectable Stoicism, or from the improved Aristotelianism of his generation. Yet there are marks that differentiate this system. Gassendi tries to reduce all phenomena to matter and motion,

excepting only the immortal soul in its separation from the body. Sensation he regards as primarily a mode of motion, possibly identical with the movements observed in plants and certainly found in animals. From the senses all knowledge is derived, though a higher faculty is required to elaborate from that basis the abstract and general ideas. From the senses Gassendi goes on to the imagination in the usual course: he marks his dissent from Platonism by making memory equivalent to the formation of folds in the brain substance, so that the retention of ideas is equivalent to the permanence of these folds. Gassendi took a keen interest in what was taught at that time about the organism, and he inclines to revive from Aristotle a biological interpretation of mental operations. This turn of affairs has a subtle significance.

The evolution of Aristotelianism had two aspects. So long as Aristotle was confused with Neoplatonism the emphasis fell on the master's doctrine of intellect. When a better knowledge of Aristotle coincided with a better knowledge of facts, it was possible to keep in touch with the scholastic tradition by quoting Aristotle, and also absorb the new naturalism by drawing those quotations from the neglected parts of Aristotle. Sufficient notice has not been taken by historians of the fact that the Stoics were eastern in temperament though Platonic in doctrine, while Epicurus was more purely Hellenic and more allied to Aristotle. The genuine Epicureanism which Gassendi had at his command serves him as a guide to those aspects of Aristotle which were not usually emphasized. His psychology therefore differs only in this matter of emphasis and is not really at variance with the Aristotelian scheme as worked out under the main headings of sense, imagination, and reason. The real significance of this Epicureanism reveals itself in the sphere of morals and of the passions, where the Aristotelian eudemonism comes to the front in its Epicurean form. This is the point common to Gassendi and Hobbes, and to it we shall return after estimating the position of Hobbes.

§ 2. Thomas Hobbes has been proclaimed the father of empirical psychology, but that honour has since been trans-

ferred from him to Vives, from Vives to John of Salisbury, and bids fair to get back in time to Aristotle. Yet there is a reason why it should have been given to Hobbes sooner or later, though that reason is not the one usually alleged. The facts which seemed to justify the claim were the treatment of motion by Hobbes, and more especially the treatment of the association of ideas. Of these the first was neither important nor original. Whatever part can be played by a doctrine of motion in the construction of a general scheme of the universe, the category becomes useless so soon as the sphere of psychology is approached. Gassendi recognized this and made no attempt to generate sensations out of movements. Hobbes made the attempt, but none too seriously: in fact, it is very doubtful whether he was clear on the difference between motion in the physical sense of the term and that idea of motion (κίνησις) which is expressed by Aristotle's terminology. It only requires a few moments' comparison of Aristotle and Hobbes to see that the psychology is merely transcribed. As to the other point, the association of ideas is treated by Hobbes with wavering uncertainty: his mention of it hardly goes beyond the vague idea of some sequence in trains of images, which he actually describes as casual or incoherent at one place, and at another as unguided. If this were all that could be found in Hobbes there could be no place for him in a history of psychology. But all this formal psychology is merely picked up by Hobbes to fill a gap and satisfy a literary convention. Hobbes was at one time associated with Bacon: it was from Bacon and not from the schools that he drew his inspiration.

It has been said that Bacon exercised no influence on Hobbes. The remark is probably true in the sense meant. The historian of philosophy looks for influence in similarity of views and phrases: it is true that Bacon was noisily inductive and Hobbes equally noisily opposed to experience, that Bacon ignored mathematics and Hobbes made himself ridiculous by his pretensions to refute the Oxford professor and to square the circle. But these are superficial points. The real affinity between Bacon and Hobbes was in their common contempt for the schools and, still more, their common love for influence and power. Born in 1588, Hobbes

was at Oxford from 1602–3 till 1608, and emerged with little appreciable gain. His knowledge of science and of the anti-scholastic movement was gained in subsequent travels. He then came under the notice of Francis Bacon and acted as translator of his works. More important than this for the development of his mind were the translations he made from the Greek, namely the history of Thucydides and the *Rhetoric* of Aristotle. Hobbes was affected by Thucydides in the way in which Macchiavelli had been affected a century before. The strong realism, the moving picture of strong personalities, the frank exposition of natural passions, all these appealed directly to the active nature of the man. The *Rhetoric* of Aristotle served as a useful commentary on the art of managing those passions. In the second book of the *Rhetoric* we are told how the arts of language may be employed to gain one's ends. The war of words is the highest form of that war of all against all which Hobbes saw around him : it is the strife that goes on when physical force gives way to the conflict of wits. Words make for knowledge, knowledge is power,[1] and the most fundamental passion of man is the desire for power. We need not wonder then that Hobbes found most interest in the passions of men, their feelings of liking and disliking, or that he regarded these passions from the point of view of their management and employment. In this way Hobbes comes very near to a purely social psychology, concerning himself most with individuals in their mutual relations. Technically there is no such social psychology to be found in Hobbes, if the term social indicates the study of the individual as produced in and through society. But in another sense the great value of what Hobbes has to say lies in the fact that he thinks more of individuals than of the parts of individuals. This is the force that emanates from Hobbes continuously, the force of the man who has said in clear language just the things we know about one another. But Hobbes quickly goes on to political matters : all that he gives us is a sketch of the kind of mental operations we may expect to find in the ordinary individual. The phrases are new because previous writers had not taken them from this source : in reality

[1] Cp. p. 154.

they are transcribed from that second book of the *Rhetoric* of Aristotle.

The fundamental difference between Plato or the Stoics and Aristotle or the Epicureans lies in the estimate of the passions. For the genuine Stoic a passion is always a derangement of reason, not an access of power but a loss. For the Stoic pleasure is a passion as well as pain: they are disturbances of reason. Gassendi and Hobbes choose the other line of thought. They regard pleasure as something positive, something which is the object of desire, and good because it is desired. The psychology which leads up to this ethical valuation is therefore the reverse of the traditional. It recognizes desire as both natural and good. It refuses to distinguish between the higher and lower types of desire, but regards all desire as fundamentally the striving of the organism after its satisfaction. The desires may be rational or irrational, but they cannot be distinguished as natural and moral because in the first instance all desires are natural, and, in the second, the good which makes morality is itself no more than the object either of collective or of particular desire. This then is the new point of view, a fresh conception of the natural man, a dynamic standpoint that sees in every person an eternal striving which creates the ends it strives to attain. The whole matter is summed up in the famous sentence:—"So that in the first place I put for a general inclination of all mankind, a perpetual and restless desire of power after power, that ceaseth only in death."

§ 3. While the overwhelming importance of science was leading the more influential writers to express the operations of the mind in terms of motion and (later) gravitation, a different course was adopted by those who were primarily interested in immediate experience, especially the religious experiences. One of the earliest of these was Lord Herbert of Cherburg, usually considered as the person who made himself notorious by supporting a doctrine of innate ideas afterwards demolished by Locke. This estimate is not wholly just. The psychologist may well be irritated by too much use of the term innate, but it has not always been used to stifle inquiry, and in the beginning of the seventeenth

century there was plenty of room for a criticism of the contemporary ideas of experience. At that time the struggle of opposing theories centred upon religious ideas no longer as indisputable revelations but as operations of reason. The writers were as yet unassisted either by the historical perspective of evolution or by an adequate analysis of the individual mind; empiricism without a genetic method to complete it was necessarily imperfect. In the *Tractatus de Veritate* (1624) Lord Herbert struggles with the problem of religious belief. He realizes the necessity of dealing with this as a psychological phenomenon. It is grasped by him as the crucial test of the doctrine that at the beginning the mind is to be regarded as a blank. According to Herbert, as afterwards according to Kant, there are presuppositions of experience, natural tendencies which develop in experience, but are not produced by it. Granted that experience here means only the operation of the senses, the contention is justified. A crude empiricism, uncertain whether a sensation is passive or active, is open to criticism on the ground that it tacitly presupposes the mind which it professes to produce as a result. In support of his position Lord Herbert could only fall back on Stoicism,[1] quoting its doctrines of "common notions," of assent, and of universality. He sees only indistinctly the significance of "assent" as a psychological principle of activity, but he succeeds in reducing belief to a natural activity of the mind, and in making religion rational he makes it a genuine variety of experience. Whether this experience should be described as primarily an emotion is a question not yet raised; for Herbert it is simply an aspect of the life of reason. In this he was directly opposed to Hobbes.

The work of Hobbes was received with indignation. The quality of his method was not called into account, but the nature of its effects was quickly appreciated. The chief opponents, Henry More and Ralph Cudworth, were united upon one point: they affirmed the reality of that higher Reason which had been quietly ignored by Hobbes. This revived Platonism was not destined to formulate its psychology in any effective manner, but Cudworth at least deserves

[1] For Stoic doctrines see *History of Psychology*, i. p. 161.

credit for a sincere defence of the active and constructive powers of the mind. If quotations are a proof of erudition, Cudworth was a very learned man. Unfortunately his whole work is controversial, and the few points he makes are hidden in a mass of citations and abusive epithets. The contemporary method of disqualifying the opponent was to prove his atheistical propensities.

One of the best statements of Cudworth's doctrine is given in the *Eternal and Immutable Morality* (Bk. iv. ch. 6). He asserts, first, that the soul is not a "*meer rasa Tabula*, a naked and Passive Thing, which has no innate Furniture or Activity of its own." He proceeds to show that some ideas require a "more inward and vital Principle," a natural determination to do some things and avoid others. The main thesis is "that knowledge and intellection cannot possibly spring from sense, nor the Radiation or Impresses of Matter and Body upon that which knows, but from an active Power of the mind as a thing antecedent to Matter." He adds that "sense itself is not a mere Passion or Reception of corporeal impresses without, but that it is an active energy and vigour." Cudworth approved the Cartesian doctrine because it sets matter so definitely apart from mind; it is acceptable to him just because it seemed to assist the refutation of materialism. If matter, then, is not a source of mental activities, it follows that the mind must have its own activities, if we are to explain consciousness at all. But at that point Cudworth fails. He quotes Plato to prove the essential superiority of the soul, but goes no further. The promise of a psychological analysis which would elaborate and make intelligible the doctrine of the "vital principle" is never fulfilled. It was not Cudworth but Leibniz who ultimately succeeded in showing that the formulæ of pure sensationalism were inadequate.

§ 4. The usual criticism passed upon Descartes is that the different parts of his system were never reconciled. These critics do not always prove that a reconciliation was either possible or necessary; it may be that in reality Descartes should be commended for not hurrying on to a premature conclusion. But this point can be left to

philosophers; the historical development which now claims our attention will show how gallantly others threw themselves into the task of perfecting the master's work, and how well or ill they succeeded.

The writings of Descartes appeared to his contemporaries to be a challenge. Mind and body were declared to be essentially distinct; man was admitted to be a union of both. Experience therefore was first made impossible and then taken as a datum for explanation. The alternatives are clear. If a beginning is made from the senses, the soul is never reached. If the reality of the soul is postulated, the body must be treated as superfluous. If the fact of unity is taken to be the important point, experience must be the ground of construction.

Descartes contributed a greater impulse to methodical than to constructive thought. The method was a sure guide to thought; construction was the puzzle to be solved according to the rules. It was clear from the first that the relation of mind and body was the central point. But it was possible to leave that question unattacked and start from the basis of experience. That an attempt to build upon the basis of experience should lead to either materialism or sensualism is a mere accident of history. The common tendency to use "empiricism" for either of these types of theory is a late development that seems to have distorted the reflections of some historians. If we rid ourselves of that prejudice we may attain a more satisfactory classification of the theories subsequent to Descartes.

The problem of psychology after Descartes is either that of the relations between mind and body or one of the cognate subjects. The possibility of any relation must be regarded as a problem of metaphysics. From the metaphysics we pass to the psychology by way of a given pre-supposition; in other words, we start from the unity as a fact which is either miraculous in its nature or requires miraculous intervention. The psychology elaborated on the assumption of an actual but miraculous unity shuts itself up to the doctrine that all states of consciousness are caused from above, by God: it declines to admit that they are caused from without, and overlooks the sense in which

God must be considered " without." This is the genesis of occasionalism.

Again, the problem divides psychologically into the problem of cognition and the problem of affections. Taking these points separately, we get the following sequence of doctrines springing from Cartesianism. First, there is the attempt to explain the origin of the contents of the mind. Second, there is the attempt to meet the fact of mental states with corporeal accompaniments, the Cartesian " passions " in the sense of emotions. It will be convenient to treat these separately.

The truest line of development from Descartes is that which follows out the spiritualistic phase of his teaching. This was done most distinctively by the Occasionalists.

Arnold Geulincx (1625–69) emphasizes those points in the Cartesian doctrine which lead to the conclusion that consciousness is never dependent for its changes on the outer world. The mind is active in thought, and every change of consciousness is a phase of that activity. But consciousness testifies to the fact that some of its changes do not depend on an antecedent act of will. It is inferred that all such changes are due to some other will, which can only be the will of God. To this purely dialectical treatment of the question Geulincx adds the plain fact that effects are produced in the soul *through* the body : the physical organism is the means which God uses to produce in our minds the states which are not voluntary.

Descartes had struggled to attain clear concepts. His successors fell into the error of substituting separate realities for distinct concepts. Occasionalism created its own problem out of Cartesianism ; for Descartes would not have seen the matter in that light. Geulincx contributed nothing to the history of psychology except the decisive statement that there is no intermediate state between clear thought and purely physical processes ; he ignored the possibility of mental processes which are not consciously presented to itself by the mind.

§ 5. The mystical or Augustinian factor in the Cartesian psychology found an able exponent in Malebranche. In this

case we find a recurrence of the influences which affected Descartes in his early days. For Nicholas Malebranche was a recluse by nature and a priest by education. What La Flèche did for Descartes the College de la Marche and the Sorbonne did for Malebranche. After these years of learning there came no such years of wandering as had moulded Descartes. The theological student became a priest of the Oratory of Jesus, a spiritual organization which enabled men to devote themselves to meditation and preaching without actually taking the vows of the Catholic Priesthood. Malebranche was therefore at once a mystic and a Christian, without being a strict adherent of the Catholic system. His initiation into Cartesianism was a kind of conversion; he chanced to pick up at a bookstall Descartes' *Treatise on Man*. His nature reacted to the influence almost violently; he fell in love with it; a new light irradiated his mind. Malebranche clearly belonged by nature to those who are capable of sudden and dominating illuminations.

Geulincx had left the body in the position of an instrument which the superior Will uses to affect the mind. Malebranche took the next step and abolished the intermediary. We know all things by the direct action of God on the mind; and this knowing is rightly called a vision, for it is as insight that Malebranche grasps the essence of knowledge. All knowing is a kind of intuition; but it is not wholly dependent on our will to know; there must be a power not ourselves that causes some of these inner activities; and this can only be the power of God.

The theological influence is manifest. But Malebranche was not in sympathy with those reactionary theologians who opposed the new philosophy; his adherence to Augustine made him favourable to the new doctrines and his real power of introspection enriched his thought. He took firm hold of the Cartesian principle that all consciousness is an affair of the mind, an inner state. But he does not maintain that there is a direct primary intuition of the self. He opposes to current Cartesianism the (scholastic) view that we know the body better than the soul. As the eye does not see itself, but things, so the soul does not know itself, but the body. The growth of knowledge is, therefore, a

continuous self-revelation dependent on experience as a process and on God as the condition of that process. The language and the thought are both strongly reminiscent of Christian Platonism and akin to Augustine's Neoplatonism. The result is little more than an intense appreciation of the mystery of knowledge. The origin of ideas from sensations is rejected, the doctrine of innate ideas is also rejected: we are left only with a potentiality of knowledge actualized by the only real Cause, the Divine Power.

Though we might expect from Malebranche nothing but metaphysics, an examination of his works reveals many acute observations of detail. The Augustinian point of view always favoured introspection and was capable of yielding valuable results on that method. Anxious to prove that what men usually call a sensible object is really a determination of our inner powers, Malebranche arrives at the doctrine that an object is equivalent to a complex of ideas. From this follow two conclusions. The elementary processes of the mind are not isolated sense data, but compound perceptions analysable into associated groups of ideas. With these perceptions there enters a principle of relativity; the size of an object, for example, is perceived relatively to a standard given by the size of the person perceiving it. The knowledge given by the senses serves only for the preservation of life; it is essentially a process of adjustment to the surroundings, and is not to be regarded as absolute in character. In place of the direct transference of an image from the object to the mind, we must suppose that sense-experience is an activity and that a perception always involves a number of associated elements over and above that element which is the occasion of the activity. This principle Malebranche applies at some length to the perceptions of distance and magnitude; the moon, for example, appears larger on the horizon than at the zenith because in the former position it is compared with other objects in the field of vision. A similar relativity enters into the perception of distance and motion, including under motion the passing of time. Time is measured by its content, which is experience; pleasant time is short, painful periods are long.

The experience which Malebranche supposes to be the

ordinary unit of unreflective thought is called by him *sensation composée.* In this sensation he frankly includes an act of judgment, but distinguishes this "natural judgment" from the *explicit* act of "free judgment." The natural judgment (*sensation composée*) is really a union of associated elements. We call it the "object" because we fail to discuss its elements, and then commit the error of attributing the sensation to the object. To detect and dissipate these errors is the object of Malebranche's work on the mind. His main interest leads Malebranche to deal with the reality of mental phenomena. He points out that there is no direct knowledge of the sense organs; a person who is seeing a patch of colour before his eyes is not conscious of the process which goes on in the retina. It is therefore wrong to suppose that the psychological image as such testifies to its own origin. In fact the same result can be obtained either by stimulating the outer or the inner end of the nerve; in modern terms, peripherally excited and centrally excited images are equally "real" in so far as they are experiences. Malebranche thinks that the "little threads" or nerve-endings in the brain may be agitated by the animal spirits, and that is his way of describing a central excitement. He notes that after gazing at a bright light we see a patch of yellow light in the middle of an object to which we transfer our gaze; this is due to the fact that the original excitement subsides gradually. The soul does not perceive the retinal changes; it merely experiences a series of colours, at first white and yellow, changing to orange, red, and blue. Malebranche is fond of little experiments, and what he says about changes in experience is usually elaborated with sufficient detail to show that real observation underlies his analysis.

Under the title of Sensation, Malebranche treats the first level of experience. The results are worth noting. The crude notion of "objects" is destroyed; the experiences are accurately described; a pure psycho-physical parallelism is introduced by showing that the physical changes accompany the experiences, but are not either the cause or the object of the mental changes; a synthetic principle is shown to operate in sensation because each sensation, though

apparently simple, can be analysed into parts naturally compounded and in some cases contains as one of its factors an unconscious judgment.

The second book of the *Recherche de la Vérité* is devoted to the subject of imagination. The first part deals with the subject analytically, discussing the nature and origin of images, or, as Malebranche puts it, the physical causes. The seat of the soul is a problem to which Malebranche attaches no importance; it is sufficient for his purpose to correlate the mind with the organism as a whole. To such factors as digestion, climate, and the action of the nerves in regulating the circulation of the animal spirits Malebranche gives careful attention (see note, p. 387. With the corporeal and the mental life thus closely correlated Malebranche attacks the problem of connexion between the images and then discusses memory. The parts of the fifth chapter (*Recherche*, Bk. II. Pt. i. ch. 5) dealing with these points have been universally recognized as a remarkable treatment of the subject.

Whenever the soul has fresh ideas new traces are formed in the brain; conversely, when new traces are formed new ideas occur. Between these two series, the corporeal and the mental, there is no causal relation; their relations depend on the act of God; the union of the ideas with the traces depends on identity of time, on the will of man, and on the will of God. First as to time. If the idea of God has been presented to my mind at the time when the brain has been struck by the sight of the letters J A H, I shall hereafter think the idea of God at the sight of those letters or, conversely, the thought of God will be accompanied by a confused sense of those letters or of the sound of that word. The will of man operates by using this fact to connect ideas with traces and so make certain signs fit to act as means of communication. Lastly, the will of God makes some traces to be natural signs of objects, so that the traces are not indifferent, but serve only to arouse particular ideas. The trace left, *e.g.*, by a tree will accompany the idea of a tree and no other idea.

Similar to the connexion between the trace and the idea is the connexion of the traces themselves. Identity in time

is the reason why traces are connected one with another: in other words, all association is by contiguity. Some associations are variable, others invariable. This is due to the fact that conservation of life is the final cause of all activity. Hence the trace of an object about to fall and crush a person is indissolubly connected with the trace corresponding to the idea of death; the result is the desire to flee. Similarity is not recognized by Malebranche as a distinct kind of association. The only principle which he employs is that of identity in time, so that association by similarity is really a case of identity, the later experience reviving the earlier by means of those elements which are identical in the two complex groups of traces. This view agrees with Hamilton's Law of Redintegration and with many later expositions of the process of reproduction.

Memory is explained by Malebranche as a habit of the organism (*Recherche*, Bk. II. Pt. i. ch. 5). This follows from what has been said about association, and it explains all the marvels of memory detailed by St. Augustine in the tenth book of the *Confessions*. For an Augustinian this view of memory is hardly orthodox; but Malebranche refuses to dilate on the subject further. Habit is the facility with which the spirits move in certain parts of the body; memory is the facility with which the spirits move through the paths they have made in the brain—that and nothing more. It is astonishing that Malebranche abandons so completely the favourite stronghold of the spiritualists, and his action is an eloquent testimony to the influence already exerted over psychology by physics and physiology. Yet it would be rash to regard this teaching as wholly empirical; whatever Malebranche says must be understood as implying the mystery of the soul united with, but never truly of one nature with, the body it accompanies.

The second part of the book on Imagination contains an interesting contribution to individual psychology. The differences between men and women, the characteristics of different ages, the tendency to lose flexibility and become old in error as well as wisdom—these and other topics occupy our author's mind. He remarks that a prepossession can colour all one's judgments: the ravages of a new disease,

for example, impress a man; they make deep traces in his brain; wherever he looks he begins to see signs of that disease: a student who had written several volumes about the cross, saw a cross everywhere; in short, the prejudices of which Bacon spoke penetrate every man's judgments. Commentators are singled out for special mention as bigoted and preoccupied persons.

From individuals or groups Malebranche goes on to a kind of social psychology which seems inspired by Bacon's "idols of the tribe." The subject is announced as being the "contagious imparting of strong imaginations." These are apt to develop selfishness and destroy civil society, but God has given them natural bonds of unity which consist in certain dispositions of the brain inducing them to imitate their fellows, to form similar judgments, and feel like passions. This imitative tendency operates partly in the mind, partly in the body. By the mind we feel the inclination to acquire the esteem of others, and this inclination secretly induces us to affect the speech, the gait and the style of our superiors. Hence fashions in dress and speech, and the tendency to extravagances in social habits. By the body is understood the brain, and the influence which produces imitation of the second kind is the dominating power of the strong imagination over the weak. Strong imagination in some cases consists in being entirely occupied with some special idea, a condition of the brain which amounts to madness; in others it consists in power of grasping and expressing ideas, a power which makes its owner able to exert great influence: to be filled with an idea is to have the power of inspiring others, and to feel deeply is to be fitted for arousing deep feelings in others. After two chapters of examples Malebranche devotes a third to the analysis of Montaigne's character and influence, an original piece of writing which by itself would give its author a unique position in the history of the century.

The preceding remarks have been based mainly on the first two books of the *Recherche de la Vérité*. The third book deals mainly with the pure reason, and affords no new material. The fourth book contains a notable contribution to psychology in the treatment of natural altruistic inclina-

tions. Malebranche recognizes a direct feeling of joy or pain aroused by the joy or suffering of others. This has a purely instinctive basis (iv. 13), as we see from the fact that pain causes a cry produced involuntarily by the " machine," and that this cry is felt by all human beings with the same emotional quality. This is a clear statement of the doctrine of sympathy and may be compared with the " primitive passive sympathy," of modern psychology. Further on in the same book a theory of play is based on the doctrine of final causes : the young are given by God a delight in those movements which keep the channels of the animal spirits open and so facilitate all later activities.

But while such points as these may still be found to sustain the work, on the whole the later books are less psychological than the earlier : the religious, speculative, and ethical interests predominate while the original acuteness and discrimination seem to fail. In judging Malebranche's work this fact should be borne in mind. As a whole the *Recherche* is not a work that is consciously psychological ; the striking points made by the writer are of undoubted value, but they are set forth as incidents in a general account of experience which is dogmatic and unsatisfactory. Malebranche hardly attempts to connect the higher with the lower mental processes, and so fails ultimately to explain either group.

§ 6. The real achievements of men like Descartes and Malebranche can be valued without any direct reference to the conflict between philosophy and religion. But when we review the general trend of a school or a sequence of writers, there comes to light a certain similarity or divergence among them which seems to be proof of other invisible forces attracting or repelling the minds of these men. This sense of conflict between observation and belief comes sharply into consciousness when we turn from the Christian to the Jew. Indifferent as psychologists may well be to such distinctions, it was not possible at this time for truth to emerge without traces of the particular source from which it came. Through the Middle Ages and through the Renaissance the Jews had maintained a literary tradition which,

if we are not too careful to separate Arab and Jew, might well be described as in no way inferior to the work done by the Christians. In all the topics that began or ended in questions of science both Christian and Jew went back to the classical work, the earlier or the later Greek products. But while the opposition of soul and body was the distinctive mark of the orthodox Christian writings from the beginning down to Descartes, the Jews were not committed to the same point of view: the inferiority of the senses which Philo had taught was an intellectual rather than a moral defect, and was to be overcome by effort rather than by an act of divine redemption. On the other hand, progress in the spheres of science and of education had tended to make the Christian writers more inclined to emphasize as means of grace the human agencies, especially self-control with its assistant factors, knowledge of the body and (psychophysical) habituation. This was the essential point of contact between Descartes and Spinoza. Though a native of Amsterdam and intellectually a child of the new school, Baruch de Spinoza (1632–1677) was by descent a Spanish Jew, and his attitude toward the philosophy which he found in vogue was permanently affected by the bias of his temperament. This is seen at once in his divergence from the Cartesian doctrine of mind and body: the dualism is rejected and a fundamental unity postulated. As a result of this we find no attempt to give any distinctive place either to memory or to will: the sequence of ideas, regulated by association and the order of experiences, suffices to explain memory: the will is not a power that overrides natural causation, but the form which desire takes when it is united with ideas, in other words when it occurs in the more complex types of consciousness. In Spinoza, even more than in the preceding writers, we find the view that philosophy is a way of life. As such its centre is the doctrine of conduct, and under the term " ethics " Spinoza includes the whole doctrine of man, his relation to the universe, his nature as a created being, and his possibilities. The conceptions of organism and conduct dominate Spinoza's philosophy, and, as the agent is an individual and a unity, it is logical for Spinoza to treat soul and body as a unity, a single being of which these are

distinguishable aspects. By so doing Spinoza lays the foundations of a theoretical parallelism and maintains that every bodily event coexists with and is co-ordinate with a mental event. This is not to be regarded as identical with a modern psychophysical parallelism: on the contrary, it is simply a metaphysical doctrine of identity applied to the sphere of conduct in which the ordinary consciousness sees a dualism of desire and will, flesh and spirit. For psychology this metaphysical basis is only important when it leads to new views on the actual course of experience, and this it does mainly in one point: as compared with Descartes, Spinoza inclines to be purely psychological and to trace connexions between mental states without the help of that physiology which seemed to Descartes indispensable. For the rest, there is in Spinoza another vein of thought too often overlooked. As he moves away from the Cartesian dualism and toward the concrete unity of the agent there is more and more evidence that Machiavelli and Hobbes are influences to be reckoned with, and the reflective reader will continually catch echoes from those writers as he follows Spinoza's treatment of the fundamental *conatus*, or notes how rigidly he excludes the moral values when he deals with the strength of motives. Inspired very largely by his predecessors, the Aristotelian Jews of the twelfth century, Spinoza is able to look through Hobbes to Aristotle and so to amend the mechanical tendencies of his age by taking what in modern times might be called a biological direction: for in the end it is clear that the organic structure and the development of character as an organic whole is the focus of Spinoza's work. With these general ideas in mind we may proceed to consider in more detail the doctrine of the passions as expounded by Descartes and Spinoza.

In spite of the many ways in which it is both inaccurate and inadequate, Descartes' treatise on the emotions must be reckoned one of the landmarks in the history of psychology. The views expressed in *Les Passions de l'Âme* are curiously complex, and the novelty of the treatise consists largely in the compromises it offers. Descartes' own interest was occupied with the mechanical aspect, and when he was called upon to give advice about conduct, he naturally

thought first of the physical and physiological factors in behaviour. In this way Descartes was led to a position strikingly akin to some modern views; as Ribot has said, Descartes' method is "that of physiological psychology and not that of spiritualistic psychology, which quite improperly lays claim to him" (*Psychology of Attention*, Eng. trans., 30). We may add that lack of historical knowledge is the cause of this and other obvious errors committed by writers who never look beyond the stock metaphysics of "the ancients." But in fact Descartes was not very anxious to alarm the powerful interests which still guarded the inner sanctuary of feeling; he probably felt that the time for open speaking had not yet come, and in any case the occasion for which Descartes began his treatise did not call for unmitigated candour.

The polite society of the seventeenth century, when it aspired to advanced thinking, was predominantly influenced by Stoicism. The intellectual ladies of the period read Seneca, and it was one of these, the Princess Elizabeth, who induced Descartes to write those letters on human happiness which formed the germ of the later treatise on the Passions. Thus, somewhat to its detriment, the treatise was from the beginning under the shadow of ethical aims, and Descartes never fully succeeded in making his mechanics of the passions independent of that Stoic teleology which made palatable his earlier letters Moreover, there is a genuine lack of clearness upon points which had been continuously discussed by writers from Plato to the Renaissance.

We cannot acquit Descartes of being uncertain whether things are sought because they are good or only because they excite motion in the organism; we cannot acquit him of failing to notice how the phenomena of the passions actually present themselves and preferring to give a deductive account of what should occur when a typical individual is acted upon by what ought to be good or bad for his nature. Beyond a doubt Descartes still thought of things as naturally good or bad, pleasant or unpleasant, in the fallacious manner of Platonism.

There is no need to dwell on defects natural to such a writer at such a time; the good points are more novel and

more interesting. The passions are "perturbations of the mind" in some sense, but new meaning is now given to that phrase. In the wider sense of the term, all disturbances of the reason are "passions," and sensations may be put under that heading :[1] in the narrower sense passions are emotions, and it is with the emotions that we shall now be occupied.

In spite of the original separation of mind from body, Descartes frankly admits an interaction in the cases of the emotions and of the will. He aimed to distinguish concepts rather than to separate things ; it is the concept of thought which excludes every element in the concept of the body : if Descartes took the passions as a fact, he did not abandon or confuse that principle. It remained open to him to treat the phenomena descriptively ; and if some phenomena required both concepts for their explanation, Descartes had no reason to shrink from employing them. He defined the passions as "perceptions or feelings or emotions of the soul which appertain to it peculiarly and are caused, sustained, and strengthened by the activity of the animal spirits."

They are, therefore, psychophysical events, and the definition is so far from being revolutionary that it may be regarded as giving, in concise terms, what had been implied in every ancient or mediæval view, namely that emotions belong neither to pure reason nor to mere matter. But the older doctrines were content to be negative and emphasize the antithesis between feeling and pure reason ; the new doctrine was marked by new principles of classification and description.

As regards classification, the two main heads of *concupiscibile* and *irascibile* are now rejected as inadequate ; a wider basis is sought in the conception of emotion as a function of the organism varying with the different relations between object and subject. Yet it is obvious that Descartes was still controlled by the idea of distinct faculties, was still sharply opposing emotion and will, and thought that a small number of fixed types would be adequate for a complete classification of all possible emotions. As regards description, the emphasis falls on the activity of the animal

[1] Cp. p. 205.

spirits, but leaves uncertain the exact part played in each emotional state by the intellectual apprehension of a situation and its meaning. In principle, at least, the problems of James's theory of the emotions are apparent here. The exact manner in which mental and corporeal factors are united in an emotion seems to have been conceived by Descartes as different in different emotions; also, there is some discrepancy in the statements themselves. In general, on the basis of the physiology already described (p. 200), we may say that an idea which includes movements of the body directly affects the animal spirits so as to produce the implied movements: thus the idea of danger includes the idea of defence, and the appearance of a dangerous object will arouse through the soul movements which avert its action. Descartes is well aware that one of the links in this chain of causation is a judgment of value; he accepts the fact that an emotion is caused by the relation of some external datum to the person, and that this relation only exists in and through the person's valuation of the object. To sustain his mechanical explanation Descartes is compelled to make this appreciation a brain-process capable of moving the animal spirits in an unique manner and so changing the character of the blood. In modern terminology, this might be considered as equivalent to explaining emotions by vasomotor disturbances and changes in the secretions. Descartes was inclined to accept such formulæ but he was not ready to reduce emotions to nothing but physiological processes. The emotions are instruments which subserve purpose; they tend to the good of the creature, because when the will is weak they provide bodily dispositions which make easy the actions that ought to be performed: they belong, in short, to a divinely ordered cosmos and are so far a part of the intelligible world that Descartes thinks they must be akin to intelligence, and some emotions are regarded as caused by the soul in which they occur, so that the physical changes are mere concomitants. Descartes, no less than the Stoics, felt the necessity of making room for "passions that the wise man may have," and he followed the Stoic example in making some emotions qualitatively different from others. These were points in which Descartes

failed to be consistent or wholly free from the traditional prejudices.

The "simple and primitive passions" are six in number —Admiration (Wonder), Love, Hate, Desire, Joy, and Sadness. Admiration is "a sudden surprise of the soul, which causes it to consider with attention those objects that to it appear unfrequent and extraordinary. Thus, in the first place, it is caused by the impression in our brain representing the object as rare, and, consequently, as worthy of exceptional consideration: and in the second place by the movement of our thoughts, which by virtue of that impression are disposed to tend with great force toward the locality of the brain in which the impression rests, in order to strengthen and preserve it there; as they are also disposed, through that impression, to pass from thence into the muscles that serve to maintain the sensory organs in the same position in which they are, in order that, if originally formed by the organs of sense, the impression may be further prolonged by their support." [1] On this Ribot remarks that "all the elements which we have endeavoured to point out in the mechanism of spontaneous attention are therein clearly enumerated; namely—the augmentation of nervous influx in consequence of the impression; its partial conduction toward the muscles; the action of these muscles in order to 'support' and 'to strengthen.'" These are points likely to be emphasized in a modern psychologist's view of Descartes. Apart from the accuracy of the description, Wonder is for Descartes the counterpart of novelty in the impressions: it alone of the emotions has an object which is not primarily either beneficial or harmful: it is, as it were, the emotion which pertains to pure intellectual activity, being for Plato the beginning of philosophy.[2] As Wonder is thus unique, all passions are reducible to the two heads, Wonder and Desire. Love and Hate are forms of desire; and, as the desirable may be an object of intellect, there is a distinction between purely intellectual love and that love which depends on the "heat of the heart," which

[1] Text as translated in Ribot, *Psychology of Attention*, 30 (*Les Passions*, ii. 70).

[2] *Ibid.*

has no object, and consists entirely in a "pathological" condition or pure *passio*. Here we seem to have the distinction upon which Kant afterwards relied in order to set the emotion which Duty inspires outside the sphere of lower impulses. Descartes rightly notices that popular terms are psychologically incorrect; gratitude is a feeling, but ingratitude is simply a name for a class of actions and is not another specific emotion; desire is positive or negative, not being the opposite of aversion but rather a state which may operate in the way of attraction (desire to have) or repulsion (desire to be rid of): whether we pursue or avoid, we express equally in different ways the fundamental desire for the better, that is the desire to preserve and increase vitality. In showing how the popular terms confused difference of effects with difference of emotions Descartes illuminated an important part of the subject. He found no intrinsic difficulty in the fact that the organic effects differed because he had already explained that the emotion was a state of the animal spirits and the blood, while the effects were secondary products due to further (kinæsthetic) action on the nerves and muscles.

The scheme of classification ultimately reveals itself as somewhat abstract but undeniably simple. If we assume the prior importance of the soul as *res cogitans*, we may give to the intellect its special emotional state, Wonder; if we proceed to consider as the fundamental type of action the effort after self-preservation, Love and Hate will be attitudes of self-maintenance in relation to present good or evil, Desire a corresponding attitude in relation to future good or evil: finally success or failure in the struggle for more and better life will be felt as joy or sorrow. Other subsidiary emotions are described by Descartes, often with acuteness, but never without irrelevant suggestions of the purposes which these states subserve. Already the lines are laid down upon which Spinoza was to build a still more elaborate system of self-preservation.

§ 7. For Spinoza mind and body are aspects of a fundamental unity. The nature of the body is the cause of passions or affections; the nature of the mind is the cause of the ideas

of these bodily affections; and as these two, the physical and psychic, events occur together, the emotions are states at once of mind and body. In this sense, and not in the Cartesian sense of interaction, the emotions or affections are for Spinoza psychophysical. As the basis is a unity with two aspects, Spinoza begins with a tendency which belongs to that unity, namely the effort of self-preservation, the fundamental will to live or *conatus quo unaquæque res in suo esse perseverare conatur* (*E.*, iii. 8). When this effort is referred to the mind alone it is called Will. Will is the name for the *conatus* when accompanied by consciousness of its activity. When we regard it as arising out of the whole nature of man, mind and body, it is called "appetite." Appetite can therefore be called the essence of man, *ipsa hominis essentia.* If we add to this that appetite may be either unconscious or conscious, we get the further distinction between appetite and desire (*cupiditas*), desire being appetite consciously apprehended as such (iii. 9).

From this point Spinoza proceeds to systematize the emotions by a rigid logical deduction. The primary emotions are three in number: *Lætitia* (joy), *tristitia* (grief) and *cupiditas* (desire). These are not strictly co-ordinate, but related rather as substance and accidents. Desire is the determination to action which arises directly from the tendency to self-preservation. Joy and grief are attributes of this fundamental state, arising from consciousness of success or failure in the effort. As the effort to attain fuller life is itself the very process of being (*ipsa hominis essentia*), joy and grief are the conscious equivalents of increased and decreased vitality (iii. 11). The actual pleasure or pain (*titillatio, dolor*) are parts of those emotions, being strictly the corporeal parts of the whole consciousness of increased or decreased vitality. Apparently Spinoza intended these to be purely corporeal, on the level of appetite, that is to say, not accompanied by consciousness. It is not clear whether by that he meant these to be wholly apart from consciousness or only a kind of implicit consciousness.

The point must be settled, if at all, by reference to the general theory of "adequate ideas." The emotions, strictly speaking, involve an idea of the object; love, for example, is

a mode of consciousness (*cogitandi*) as including an idea of the object loved. Thus appetite and desire differ as blind impulse from conscious pursuit. Similarly a mere feeling is blind, and in that sense unconscious (devoid of any "idea"); an emotion is a higher state involving more mentality. But emotions are inferior to intellectual operations, because at this level the ideas are "inadequate," confused by the intrusion of factors due to the body (iii. 3). To this distinction another is added, namely between those affections of which we are ourselves the cause and those which are due to external causes. Thus there are the following degrees of consciousness—(*a*) cognition of the first order, including (1) individual perceptions, (2) signs and images: (*b*) general ideas, *notiones communes*. These are produced as "blurred images" by the failure of imagination. Finally there is *intuitus*.

Ideas or states of consciousness are thus divided into (*a*) adequate, and (*b*) inadequate. The former involve action, the latter are passive states (sensation, imagination, emotion). The "idea" (or degree of consciousness) constitutes the basis of classification for the emotions: so that our affections will be divided also as (*a*) active, and (*b*) passive. First comes the analysis of passive states.

The passions are in variety infinite; but a principle of classification can be found from the fact that the passion is qualified by the idea. The accompanying idea can be either of an external object, or an internal cause, or of an object wanted. The primary affections can be treated on this basis as follows:—

Joy: with the idea of external cause is Love.
Grief: with the idea of external cause is Hate.

From these two follow certain derivatives: (1) Sympathy and antipathy are affections of joy and grief due to latent causes. A person acquires a dislike for an object A because it suggests B, another object already disliked. We might call this the transference of emotion by association of ideas. (2) The converse position is illustrated in the case of approval (favour) and indignation. If a person A, toward whom I have no feelings, confers a benefit on B whom I love, A

becomes the object of a feeling for B. Similarly, if A harms B, I am indignant with him. A more subtle point is added to this. The emotion is sometimes caused by an action benefiting or harming a thing in which I am interested, e.g. my house or my garden: but it may also arise when the object is like me, e.g. when it is another person. Here no direct previous interest is assumed, but the idea of another person is so far akin to my idea of myself that a similar emotion is produced (iii. 27). This is the principle called by Spinoza *imitatio affectuum*, according to which similarity of ideas is the cause of similarity of emotions. If the basis is grief, this becomes commiseration,[1] and there should be a term to express the corresponding emotion when the basis is joy: this term is sought in vain (iii. 22, pt 2). (In German *Mitfreude* expresses the idea, and *congratulation* in English is sometimes a strict antithesis to *condolence*).

Pity (*misericordia*) has its basis in love (of the object in distress), but is actually a state of grief; it differs from commiseration only in being more general and more akin to a habit or disposition: it is, in fact, "tender heartedness" and properly denotes a readiness to appreciate the moods of others. Its opposite is Envy, or the tendency to refer all events to oneself; the envious person rejoices in the sorrows and grieves at the good fortune of others. This very subtle analysis is dominated by Spinoza's conception of the *conatus*. It is our striving to get ahead of others that makes us feel the reverse of their feelings: their loss is our gain and their gain our loss: the real basis here is a kind of universal hate. The *conatus* expresses itself in relation to other persons as competition: we strive to prevent others from possessing such things as can only be possessed by one: from this competitive attitude (*æmulatio*) arises envy. Children show this tendency: they do as others do from the mere desire not to be left out; they cry when others cry, from sheer desire not to let others cry all by themselves; the surest way to make a child want something is to pretend you want it yourself (iii. 32). As Spinoza points out, envy or grudging operates only in a limited sphere; the farmer

[1] This is usually called sympathy; the distinct and more accurate use of that term by Spinoza should be noted.

envies the other farmer's crop, not the politician's fame; in short, we envy when we feel that we might have obtained some good if it were not already another's.

These more permanent states of mind are contrasted with the "fluctuations of the mind," or mixed emotions, when we love and hate the same object at the same time (iii. 17). Of these mixed states jealousy is a typical example.

Spinoza makes extensive use of the idea of association and of reproduction. Propensity and aversion are due to such factors; they are forms of joy and grief related to objects associated with ideas of good and bad. The house in which our happiest days were passed is not in itself good: it is a cause of joy *per accidens*. Here Spinoza deals with wonder or astonishment; he does not follow Descartes, but makes it a state of mind accompanied by any other emotion. Thus we may feel astonished at the character of a person; if this is associated with the idea of harm it becomes dread (horror); if fear is the associated element, consternation is produced; if the virtues of the person are recalled, there is veneration. The opposites of all these emotions are grounded in contempt; as we admire abnormal wisdom, so we feel contempt for extreme stupidity; if we condemn what we hate, there is a sentiment of mockery (*irrisio*), as the downfall of an opponent causes merriment in our hearts.

Hope and fear are classic examples of mixed states (cp. p. 275); they pass into carelessness or despair when the element of doubt is eliminated.

In the category of affections accompanied by the idea of something internal as cause, Spinoza puts self-love or "acquiescence in oneself," and its opposite, humility: also repentance, which is not a virtue, but a twofold evil, for it involves a previous evil desire and a consequent state of grief. Where self-esteem is based on ignorance there arises pride, "a kind of delirium," and abjectness: both are due to incorrect judgment of one's own worth. When this judgment is mediated by a reference to others we have pride and shame, "joy and sorrow accompanied by the idea of some action on our part which we represent as praised or blamed by others." Shame in this sense should be

distinguished from shame as a virtue, whose opposite is shamelessness.

From cupidity arise several states. Desire when accompanied by a sense of obstruction becomes longing: this is practically a form of Grief, but depends upon desire finally. Love gives rise to gratitude, the desire to make due return of affection. Benevolence is desire arising out of commiseration. In these cases desire and love are united. When desire and hate are joined they cause Anger and vengefulness. If the hatred is not reciprocal, but the person is well disposed, cruelty arises from hatred. The opposite of cruelty is the state of clemency, which is not a passion but a control exercised by reason. Other passions, such as voluptuousness, avarice, etc., arise from Desire, distinguished by their objects only.

Following the plan described on p. 242 we now pass from the passive to the active states.

Reason constitutes character by restraining passions; but the restraint is only achieved through other passions. The Cartesian maxim is opposed by Spinoza when he says "Affectus nec coerceri nec tolli posse, nisi per affectuum contrarium et fortiorem affectu coercendo" (iv. 7). The general name for strength of character is *Fortitudo*, including *Animositas* (strength of mind) and *Generositas* (nobleness). These are desires which tend only to the useful. By these we set the greater good of the future before that of the present, and in general subordinate impulses to calculations. Sobriety, chastity, and such virtues are due to this control of "presented" by "represented" ideas, as Spencer afterwards expressed it. *Generositas* is the social virtue corresponding to the individual virtue of *animositas*; it is the rational striving after the improvement of others and their attachment to oneself. Nothing is so useful to a man as his fellow-men; the goal of conduct is a life of reason, which requires reason in others for its peaceful development. We can learn to know our own passions, and in that knowledge they will cease to be passions. This is the state of virtue, the attainment of the true end of desire, and the highest (because most fully conscious) level of self-preservation. By this road Spinoza returns to the

ancient doctrine of Theoria, the *vita contemplativa* in which all principles of action are harmonized.

The dualism which Descartes maintained left him with a faculty called Will, essentially the faculty which operated in free choice of actions and in restraint of desire. This, as a psychological factor, had no real place in Descartes' scheme: it was an ethical residuum. Spinoza makes Will fundamental in so far as it is *conatus*. Ethically considered, what we desire is what we call good; and so far the basis is voluntaristic, with an obvious recollection of Hobbes. But the good, if it is not merely a name for things, but the name for things as valued, is constituted by knowledge, and therefore our will for the good is not an independent faculty, but simply enlightened effort. Among Spinoza's predecessors Maimonides emphasized knowledge; Chasdai Crescas counted love the supreme state: Spinoza's *amor intellectualis* reconciles the opposition. This is not a faculty, but an acquired state which emerges as the product of mental development. It might be made a theme for an essay on Spinoza's attitude to religion, but that is not relevant to our subject. The final *intuitus* is a timeless state, in the language of metaphysics: psychologically it is a completely adequate idea. The meaning of this will be clear if we recall Spinoza's view of the relation between intellect and imagination. Time enters into imagination: it has, so to speak, a perspective and is liable to produce illusions analogous to optical illusions. We may know an action tends to evil: but if the evil is far off, if there is a long interval of time placed between us and it, it may be presented as imaginary evil and not as positively bad. That is a true and valuable indication of the effect which time has on practical estimates: it may serve to show how far Spinoza was from meaning by his *intuitus* any emotional or ecstatic condition. In the end there is no faculty of Will, no *Voluntas* over and above the separate *volitiones*; only the concrete Self remains, fully developed, expressing itself in actions which are voluntary because they are fully conscious.

CHAPTER IV

EXPANSION OF PSYCHOLOGY IN THE SEVENTEENTH CENTURY

§ 1. In spite of its many defects the work of Bacon was both inspiring and architectonic. The promise of an "open road by which to penetrate into the hidden things" was the charm which drew men after "the illustrious Verulam." This road, the road of induction, had not been very clearly indicated by Bacon himself, and his admirers followed tortuous paths in attempting to get from particulars to universals. Yet the attempts were genuine efforts. In the natural sciences the great Bacon failed to grasp the real nature of the scientific movements initiated by Galileo: but this failure did not prevent him from suggesting to others the possibility of new methods in many diverse branches of knowledge. This can be seen particularly in questions relating to education, religion and social relations.

During the seventeenth century the theory of education shows distinct traces of psychological modes of thought. It is easy to overestimate the psychology and difficult to state accurately the limits between practical common sense and a conscious employment of psychology. A genuine interest in education compels the teacher to reflect upon the character and abilities of the pupil; by its very nature education makes prominent the mental aspect of the individual and so gravitates toward psychology. The pedagogue, aspiring to attain better results, looks for help to any source from which he may obtain new light upon the dark field of his labours; he reflects and re-enforces every fresh endeavour to illuminate the secret springs of human character. When Bacon offered to the world a fresh motto and the idea of conquering nature was expressed in terms of definite

methods, the educational reformers hastened to experiment in their own department.

Among those educational reformers who have combined the practice of teaching with a large speculative outlook stands John Amos Komensky, , usually called Comenius. *The Great Didactic*, published in 1657, shows that new ideas on the nature of man were ready for incorporation in the scheme of education. On many fundamental points the old heresies still persisted in this work. The individual is still regarded as made after a pattern ; nature is the same in all, we are told, and therefore all persons can learn all things if the true method is discovered. Pansophia, like panacea, is the name for a " real universal," still vainly sought after. The process of turning out scholars is regarded as a mechanical process, " as by one kneading of material and one heating of the oven a baker makes many loaves." The mind is for Comenius a blank tablet on which the instructor can reproduce indefinitely the contents of the text-book. This was the bad side of empiricism ; a blind faith in experience made its devotees ignore all reaction and treat the individual as wholly receptive. To offset this there was the fact that the senses attained some importance. For the sense-realist the learning process involved the use of objects that employed the senses, so that the powers of the individual were stimulated by sights and sounds, by smell and touch, and not merely by imparting " ideas " or exercising the memory for words. A further advantage was derived from the tendency to follow nature and adapt the teaching to each stage of mental development. Unfortunately the development was measured by the emergence of " faculties " ; so that the old sequence, external senses, internal senses, comprehension, judgment, will, was still used as a scale of development regulating the arrangement of the curriculum.

While Comenius may be credited with a conscious grasp of the part played by psychology in education, there remains one great fault in the whole scheme ; that fault is the obvious inability to learn anything from the pupil. Comenius applied to education many analogies from Nature ; he drew nothing from the schoolroom that might correct the idea of nature,

excepting the stray gleam of insight implied in the remark that " boys are like apes ! " A similar criticism applies to those tracts on education which embodied the general aspiration toward better methods and followed in a vague fashion the " naturalism " of Comenius. The only exception to this general condemnation is the " Advice " of William Petty (1648), a letter on education which shows keen appreciation of natural dispositions, contains acute observations of children, and insists on the necessity of following " natural propensions." John Dury followed much the same general lines, declaring that natural capacities should be studied and work in the school should be organized so as to arouse interest, hold the attention, and produce a systematic unity of ideas. But we look in vain for any fresh psychological insight among these reformers of schools. Men of the world, looking at education from the outside, were in a better position to change the attitude of the teacher, and it is in fact from Montaigne and from Locke that we get decisive movement at this epoch. Montaigne rejected pedantry in the interest of a more complete formation of character. Locke declared that " each man's mind has some peculiarity as well as his face that distinguishes him from all others." This statement, though not elaborated further, may be taken as marking the real turning-point, after which there is a definite attempt to study the nature of the individual and the varieties of character.

§ 2. The importance of educational psychology, historically considered, consists in its tendency to be an inductive treatment of the subject and a way by which the formal treatment of the mind was supplemented with consideration of the springs of character. A similar importance must be attached to those tendencies which led to the discussion of social and religious phenomena from the point of view of temperament and training. A vague pervasive influence emanated from this source producing a change which evades strict definition, but is none the less significant. In place of formal treatises we have essays ; lists of faculties disappear in favour of maxims and delineations of character ; finally there emerges a definite theory of the social

consciousness, of conscience, and of other allied topics which together form a great extension of the area of psychological investigation.

Bacon and Locke were chiefly responsible for this new type of literature. Bacon's *Essays* were a model in form and matter; Locke supplied the general idea of method. A few typical examples must suffice to indicate the importance of this development since the diffuse character of the writings in question makes it impossible to do more. Bacon's *Essays* began to appear in 1597. In 1614 Sir Thomas Overbury's *Characters* reflected the spirit of those *Characters* which Theophrastus had sketched as a supplement to the types classified in the fourth book of Aristotle's *Ethics*. In the last quarter of the seventeenth century (1687) La Bruyère added his *Caractères* to the descriptive literature of the human race. The interest which produces work of this kind is akin to that which supports the drama and the novel of character. Shakespeare's name suggests a wealth of observation which psychologists have never failed to appreciate; Molière's work was a supreme achievement in the study of characters; in 1678 the French novel of character began with Madame de la Fayette's *Princess de Clèves*.

The literature of France during the seventeenth century was peculiarly rich in works that may be regarded as contributing directly to the progress of psychology. Descartes and Malebranche are counted among the classic philosophers; they were authors of systems, leaders of schools of thought; but that part of their work which deals most directly with the actual working of the human mind has a close affinity with other and more popular types of composition, the drama, the sermon, the essay and the epigram or maxim. A complete survey of the century requires some reference to these works and to the relation between them and the more academic treatises.

The dramatic works of Corneille (1606–84) belong to a period when the presentation of character was largely dependent on tradition. The individualism of the modern world was striving to become articulate by using for its mouthpiece the great names of Greek and Roman history. But genius transforms its material, and the genius of

Corneille was shown in his grasp of real life around him and his power of presenting general truths in the form of concrete individual characters. The dominant figures in the theatre of Corneille are embodiments of the will that overcomes desire; the passions are essentially ruling passions, strong emotional tendencies organized by reason: love itself ceases to be blind and sees the good it pursues. Corneille thus endorses the idea of power suggested by Macchiavelli; he harmonizes this with the Cartesian teaching that reason can direct and control the animal spirits. But the agreement between drama and philosophy was in this case the outcome of a common limitation; they were both dealing with psychological material in a disingenuous fashion, adapting the construction to satisfy ethical purposes and proving faithless to the cause of observation. The more detached attitude of Molière was better fitted for the production of real delineations of character. Racine, in the last quarter of the century, indicates the closer approach to nature which was gradually achieved. The ideal types here give place to characters that exhibit human weakness; from the Jansenists Racine learned the natural conception of man, and from experience he learned how often neither free will nor grace achieves the suppression of the passions. The importance of Racine, in this particular matter of psychology, lies in the fact that he gets away from the conception of fixed types and succeeds in compelling attention to the infinite diversity of sentiments, their endless modifications and variety of combination in differing temperaments and periods of life. Taken together, Corneille, Molière and Racine furnished a powerful stimulus toward the destruction of mere catalogues of "passions" and the recognition of the full significance of character.

Next to the dramatists come the orators. Bossuet maintained the traditions of the greatest preachers by his power of analysing the processes of thought and feeling. He consciously utilizes the analysis of mind as an instrument for interpreting history; his *Oraisons Funèbres* and *L'Histoire des variations des Eglises protestantes* are models in this style of work, while the *Connaissance de Dieu et de Soi-même* retained the ancient grandeur of the mediæval

catholicism. In analysis of character and description of human nature Bossuet was matched by Bourdaloue, a preacher who was second to none in recognizing and exposing the psychological basis of sin and repentance.

The cultured audiences that could appreciate these orators were doubtless familiar with the reputation if not always with the inner life of the great salons. Through the seventeenth century runs a clear mark of separation between the worldly and the other-worldly, the monk or nun and the smart company of the most exquisite society ever known. Pascal and La Rochefoucauld are at the opposite extremes of thought and feeling, but they remain united by their opposition. Pascal, developing from scepticism to a devout mysticism, passed from the objective world of science to the inner sanctuary of the heart, repeating once more the experience of Augustine and expressing a second time that inner life which gave eternal value to the Confessions. Unlike Augustine, Pascal is apt to be incoherent, thought melting into feeling and fading out of the light of clear expression. The great maxim, the heart has its reasons which the reason does not understand, serves still as the formula for intuitions which defy analysis. And that was exactly the significance of Pascal; he proclaimed the inadequacy of analysis to achieve a final exposition of thoughts and feelings; he helped to restore a feeling for the totality of character against the traditional lists of passions, but at the same time he encouraged an obscurantism fatal to progress and gave encouragement to that kind of "enthusiasm" which claims to have escaped once for all from the domain of reason. For the psychology of religion Pascal was at once the discoverer of a new realm and a sinister figure barring it from exploration.

La Rochefoucauld (1665) might have taken Pascal's maxim for his own motto. Banished from the world of courts and salons by the wound which deprived him temporarily of his eyesight and permanently undermined his health, La Rochefoucauld passed from the sphere of action to a life of quiet reflection. The reflections of Pascal were spiritual; the meditations of La Rochefoucauld were operations of the intellect, inspired by the world and offered as

final judgments on the heart of the world. We need not look for philosophy, least of all moralizing philosophy, in the pages of La Rochefoucauld's *Maximes*. The ideals of life are for La Rochefoucauld shadows cast by passions; virtue is the power of the individual to achieve his ends in society; virtue is essentially the same as vice, for virtue is the passion we praise, vice is the passion we condemn. From this point of view it was possible to avoid the ancient fallacy of confusing psychological motives with desirable qualities. The "pure intellect" devoid of passions had already been discredited; now the "pure character" received a similar treatment, and it was revealed to the world that "the vices enter into the composition of the virtues." The application of this principle was not made without bitterness and extravagance, elements hostile to strict scientific analysis. Yet in the main this anatomy of the mind was sufficiently true to be recognized as laying bare many reasons of the heart which the intellect had not previously acknowledged. The great fault of the *Maximes* lies in its pessimistic bias; we may agree that the "Constancy of the wise is only the art of concealing agitations," but the statement that "sincerity is usually only a subtle dissimulation designed to win confidence" is obviously inferior; the former maxim is a psychological generalization, while the latter is a mere description of a possible, but by no means universal phenomenon. Already in these epigrammatic utterances there is something of that fallacious lucidity which made the enlightenment a new form of obscurity. For in dissipating the clouds of sentiment which to the cynic seem to be pure hypocrisy, La Rochefoucauld and his imitators overlooked the fact that self-deception is a reality for the deceived, and sentiment is a real product of "psychological chemistry." Analysts of La Rochefoucauld's type overreach themselves when they try to show that a product is only the sum of its elements, e.g. that justice is a compound of the desire to avoid harm and the fear of being harmed. The "elements" here are analogous to those "simple ideas" which were offered as the atomic parts of knowledge; psychologists had yet to learn the fallacy of this method.

PART IV

THE EIGHTEENTH CENTURY

John Locke was born in 1632. He was nearly sixty when he finished the famous *Essay* (1690), so that we may rightly see in it the distilled essence of a lifelong meditation. It was not only written toward the end of his life, but also brooded over long before, as we learn from the commonplace books. The purpose and the plan of the work occurred to its author as early as 1670, and these ideas had their root in still earlier meditations and experiences. Locke was not an academic person; he loved freedom and disliked the fetters of tradition and a curriculum. His education was complex. At Oxford he learned the current Aristotelianism, afterwards to be derided by him; there, too, he acquired the principles of medicine and practised fitfully and informally all his life. On the continent he learned something of Descartes, Gassendi, and the Montpellier school of philosophical physicians. His life was of a kind to prevent absorption in abstract theories or the rigidity of conservatism. It is remarkable that in the end Locke's great work reflects so little of his life and so much of his character. Locke's medical training might have led him toward current materialism, but he consciously declines to deal with the physical aspect of mind, and nothing remains of his medical science except the practical bent of his thought. A different man would have allied himself to one or other of the Cartesian developments; Locke is not strictly Cartesian, nor a follower of Hobbes, nor a disciple of any definable sect. He wrote as he lived, with an independent outlook on facts and theories.

Out of the fulness of his own heart Locke undertakes the cure of intellects. He did not write about the soul or compose a formal psychology; he wrote an essay, and his subject was the understanding, its nature and its limitations. Locke's psychology has to be extracted from his works and torn from its context, with some loss of significance. Only the method really belongs to his work as a whole; the rest is tentative and incidental. But the method is psychological; it may be described as "psychogenetic," for it traces the formation of the understanding from its beginning to its full development. Yet this is not a "genetic" method in the true sense. Locke does not describe a process

that takes place in time; he has no idea of evolution; in the spirit of his age, he creates a starting point by a principle of analysis and proceeds to explain complexity. His medical science was too crude to suggest the idea of embryonic thought or lead him to treat the mind as an organism.

The beginning is made with a clean sheet. The mind is declared to be at first a *tabula rasa*. The doctrine of innate ideas is refuted on the ground that no such ideas are found in the mind of children or savages. Locke refers only to the writings of Lord Herbert; he probably meant to include the Platonic theories revived by the Cambridge Platonists, but he had personal relations with the Cudworths that may have prevented him from being too definite. In any case his object was to deal only with experience, and by experience he meant a process that falls strictly within the limits of life and death.

The first book of Locke's *Essay* is not really a part of his psychological work; it is a chapter on anthropology, greatly influenced by contemporary accounts of uncivilized races. It has an interest of its own in showing how travel was widening the thoughts of men about the races of mankind, but otherwise it is of secondary importance. As Lord Shaftesbury said, "innate is a word Mr. Locke poorly plays on." But Locke's beginning had one significant feature—it excluded the possibility of regarding consciousness as wider than the immediate field of thought. In other words, the possibility of developing the Cartesian doctrine by means of *latent* ideas was decisively excluded.

Locke avoids, when possible, the traditional forms of expression. He makes his own terminology. For him the word "idea" means "the object of the mind when it thinks"; sensation denotes the effect which constitutes experience of an object as its cause, and reflection denotes a reaction of the mind upon the original experience. Looked at in another way, sensation may be ascribed to the outer sense and reflection to the inner sense. The influence of Descartes is shown in this treatment of reflection; in making it an original power of the mind, and not subsequent to sensation, Locke has committed himself to the support of such an inner power as would properly belong to a "thinking thing."

Not observing that and avoiding any definite statements about mind or matter, Locke presents reflexion as a function owned by nothing. The attempt to start from a pure experience, which is Locke's real aim, is thus corrupted at the root.

The analysis of experience begins, then, with some tacit assumptions. As it proceeds these assumptions clamour for more explicit recognition. Sensation, we find, is capable of giving only certain kinds of knowledge. Some of the ultimate contents of consciousness are due to demonstration, others are intuitive. The outer sense is the means by which we are brought into relation with things; the inner sense gives us knowledge of ourselves. What is the nature of this process? Is there a relation of causality between the object and the mind? If so, Locke ignores the very problem which Descartes found most intractable; and the inner sense becomes more unintelligible than ever. These are the points thought out by Berkeley and Hume. Their attitude will be seen later.

In the course of his construction of experience Locke introduces other factors. His common sense revolts from the idle talk of faculties. To say that the act of willing is due to a faculty of willing amounts to mere tautology. But Locke's rejection of faculties is followed by the adoption of powers which have no advantage over faculties except in being less definitely real, in the scholastic sense. Locke wishes to shift the point of view from agencies to activities; he thinks more of the classification of phenomena than of the distinctive sources to which previous writers had assigned the different types of experience. The aim was good; the method preserved the Cartesian tendency to make consciousness the sole basis; but the execution of the design was inadequate. This (as Herbart pointed out [1]) was expecially the case in the passages referring to Memory and to the span of consciousness. In both these places Locke betrays his tendency to pass uncritically from ideas to some agency which manipulates the ideas, or from the content of consciousness to something over and above that content.

[1] Werke, v. 214.

So far, then, we find that Locke begins with a classification of the contents of consciousness according as they are given, by the senses, or produced, by the activity of the mind. We can proceed to see how he describes each of the recognized types of activity.

Sensation implies no activity ; it is a process which brings over to the mind that which determines its activity. In Locke's words : " when I say the senses convey into the mind, I mean, they from external objects convey into the mind what produces there true perceptions " (*E.*, ii. 1, 3). This is not very satisfactory as an explanation, but the purpose of the words is clear. Locke really thinks the sensation consists in a motion of the animal spirits (*E.*, ii. 8, 4), but he desires (after Descartes) to distinguish between the physical fact and its psychic result. His interest ends when he has declared that sensation presents objects " whether we will or not," and he compares the mind to a mirror that cannot " refuse, alter or obliterate the images or ideas, which the objects set before it do therein produce " (*E.*, ii. 1, 25). Bodies produce ideas in us by " impulse," a motion being transmitted by " our nerves or animal spirits " to the brain. This applies both to primary qualities, i.e. bulk, figure, texture and motion of parts, and to secondary qualities. The phenomenal or subjective character of perceptions is proved, psychologically, by the experience of heat in one hand and cold in the other, when both are held in the same water. This is only to be explained on the assumption that heat and cold are " nothing but the increase or diminution of the motion of the minute parts of our bodies." This establishes the required distinction, between the objective nature of the cause and the subjective character of the effects in consciousness.

While sensation is the name for a physical process, perception is " the first faculty of the mind exercised about our ideas." It is also " the first and simplest idea we have from reflection " (*E.*, ii. 9, 1). While we have no innate ideas we may acquire pre-natal ideas through experiences in the womb. The newly born child shows an intense desire for experiences, particularly for that of light. Perception is a power that belongs to animals (in a lower degree) and

to man. Plants act mechanically, as in the case of the "sensitive plant," but animals have sensation: a point on which Locke differs from Descartes. Perception also involves some degree of judgment. In the case of a man born blind, the mere sight of an object like a globe would not produce more than the idea of "a flat circle variously shadowed." This shows that the ordinary adult perception is a complex activity involving judgment. So that our actual perceptions are coloured by other experiences and affected by habits of mind. Locke here shows what we shall have occasion to notice again, namely a clear idea of the unity of consciousness: a single aspect of the mind is regarded by him as implying its whole nature.

From perception Locke proceeds to consider retention, memory and recollection. He connects the affections with retention, remarking that those ideas are most lasting which are originally accompanied with pleasure or pain (*E.*, ii. 10, 3). He also remarks that the permanence of memories may depend on the constitution of our bodies and the make of our animal spirits. In memory or "secondary perception" the mind is usually passive; in saying that it *may* be active Locke shows that he regards the passive state as more normal.

Memory or retention makes the mind capable of comparing, and so attaining "that large tribe of ideas comprehended under relation." Naming and abstraction follow from that. Abstraction is one of the ways in which the mind manipulates the simple ideas; the others are combining ideas to make complex ideas (beauty, gratitude, a man, an army, the universe), and relating ideas. In this way the increasing complexity of the mind and its contents is explained.

The later editions of the *Essay* were enriched with new material. The chapter on The Association of Ideas was part of the later additions; the discussion of desire and will was another. The nature of the chapter on Association seems to have escaped notice. It makes no reference to the "Laws of Association," shows no sign of acquaintance with Aristotle or Hobbes, and does not even begin with its apparent subject. It is upon the unreasonableness of men that Locke seizes; it is the cure of minds that seems

to him most important. The real topic, then, is the way our ideas cling together; in other words, the nature of our complex minds. Some ideas have a natural connexion with others: so much Locke assumes as self-evident. But the actual union of ideas, which at any given time constitutes our thought, is not such a "natural" affair: the motions of the mind are like those of the body in being variable in relation to the general condition. But an absolutely normal person is an ideal, scarcely ever realized; most people are not quite sound in body or mind, there is no one who has not some degree of madness (*E.*, ii. 33). The changing course of thought is not guided by reason, though there are always reasons for a change. Custom produces habit, and there are habits of thinking, of determining in the will and of motion in the animal spirits. How far habit is a physical effect, Locke will not say. It seems as though all habits are "but trains of motion in the animal spirits, which, once set agoing, continue in the steps they have been used to, which, by often treading, are worn into a smooth path, and the motion in it becomes easy, and as it were natural." But whether the series of ideas depends upon the physical series Locke will not decide. The whole question of association is a question of the constitution of the mind; accidents of time and place do not wholly regulate it: feelings enter in and the whole composition of our thought may be affected by some innate or acquired antipathy. Locke sees the significance of this for the educators; he thinks they look after health of the body and forget the mind. That was where the observer and the medical adviser showed his bent. But we should like to hear something more about antipathies that are not acquired but natural. This seems to indicate a depth of introspection not reached before; perhaps the addition of this chapter was a mark of progress in Locke's thoughts. However that may be, the disorders of the mind come in for elaborate treatment. The cementing of ideas by brooding over wrongs; the dislike of that which has caused pain; the slow work of time in changing the mental outlook when reasoning quite fails; curious oddities and eccentricities that have secret causes in associations; all these are noted with astonishing freshness and skill.

The whole chapter reflects the united qualities of the physician, the liberal thinker, and the keen observer of men.

§ 2. Locke, Berkeley and Hume form a chronological sequence conveniently named the English Empirical Philosophy. Under the convenience of this title lurks a temptation; those who yield to it regard Berkeley as essentially at one with Locke and Hume, ascribing variations to theological interests. For the history of metaphysics or philosophy in general such a superficial reckoning may be adequate. Doubtless in the main points Berkeley did mean what Locke had meant; they both aspired to philosophize in a manner worthy of gentlemen and Christians. But in the finer details there is a significant diversity. George Berkeley, sometime Bishop of Cloyne, was born in 1684 and died in 1753. In 1687 Newton published his *Principia*; in 1690 Locke published the *Essay*; in 1696 deism was revealed in Toland's *Christianity not Mysterious*. Berkeley began his academic life in 1700, when he entered Trinity College, Dublin, and these were the forces which then controlled the thoughts of all by attracting or repelling. The young philosopher was acquainted with the "new way of ideas"; he did not suffer from any obstructing prejudices, and he did not lapse uncritically into an idle fondness for novelty. As a result Berkeley's work combines great originality with strong conservatism. His first work, the *New Theory of Vision*, shows the brilliant cleverness of the young man; his last, *Siris*, shows matured wisdom. While the *New Theory* only touches one subject directly, it indirectly affects all Berkeley's views. Its main positions are restated in the works that deal with knowledge and with theological doctrines. Its empirical character is reflected in everything which Berkeley says about knowledge. But as time progressed its author gradually ceased to be limited by its terms; the extent to which a study of sensation, however acute, falls short of the full study of man, gradually became obvious to Berkeley. Though a scholar in the truest sense, Berkeley was no recluse. He knew the society of his day, was acquainted with such eminent men as Addison and Swift, travelled on the Continent, and saw in England

the extremes of prosperous corruption and impoverished virtue. The well-known effort to establish a centre of plain living and high thinking in Bermuda, which brought Berkeley to America but ended in nothing, remains to prove that Berkeley's spirit of adventure was not limited to the world of thought. When justice has been done to the significance of the *New Theory of Vision* it will be necessary to render justice also to the adventurous spirit which rises in the *Siris* to other levels and looks upon new fields of speculation hardly yet fully explored.

The *Essay* toward a new Theory of Vision, first published in 1709, must be reckoned the most significant contribution to psychology produced in the eighteenth century. It merits this title on two distinct grounds : for it was not only an original treatment of the topic, but also a classic example of method. In point of method the Essay has been rightly described as the first instance of clear isolation and purely relevant discussion of a psychological topic, and this penetration to the strictly relevant detail is in fact the secret of Berkeley's success. In order to show exactly what constituted the merits of this new theory it will be necessary to cast a look backward.

Before the eighteenth century dawned the worst errors in the conception of vision had been corrected. The form of the eye, the function of its constituent parts and the nature of light had been brought into the sphere of scientific knowledge. The attempts made to solve the problems concerning perception of distance and size were unfortunately vitiated by a special kind of error, the tendency to suppose that perceptions were made up of conceptual elements. The interest in optics and dioptrics produced elaborate treatises on the geometrical aspects of the subject, and men's minds were full of lines and angles. They slipped from that into the habit of speaking as though the angles at which the rays of light converge were the real data for judgment of distance. Though more refined in its details, this was not different in nature from the old notion that the image in the pupil is the primary object in visual perception. To explain the *perception* of distance by a " natural geometry " of this kind was no less absurd than to explain the pain

of a wound as dependent on knowing the scientific name for the nerve affected. In brief, the prevailing emphasis on knowledge, on the cognitive powers, was a source of errors from which only genius could shake itself free.

So long as the eye-states or the brain-states were taken as the equivalents of experience it was difficult to shake off this "natural geometry." Consequently the idealists were in the best position to make innovations, and in this respect due regard must be paid to Malebranche. The treatment of distance and magnitude by Malebranche (*vide* p. 228) was strikingly original. In its main principles it clearly anticipates Berkeley's doctrine, and the fact that the typical problems (such as that of the apparent size of the moon) are common to both these writers, increases the similarity of the two discussions. It is difficult to estimate the amount and value of Malebranche's influence on Berkeley. The *Recherche* was well known in England; Locke undertook to refute Malebranche and Berkeley makes reference to him by name. On the other side of the account must be reckoned the extent to which both writers deal with material that was common property, and, most important of all, the extent to which Malebranche overlooked what Berkeley regarded as fundamental, the part played by touch.

Scientific opinion was unanimous on some preliminary points. It was agreed that as a rod extending from the eye to an object would only be visible at the end near the eye, distance in the sense of depth of space could not be an object of pure vision. There was also a general acceptance of the facts known as aerial and linear perspective, that is the estimation of distance as accounting for the indistinctness or smallness of objects known by near experience to be distinct and large. The problem of perspective, which had been of primary interest to the great painters, really involved the central idea which was now emerging, the idea of arbitrary intelligible signs of which distance was an interpretation. This was the real extent of Malebranche's work. As a metaphysician Malebranche divorced the mental processes from the physical and regarded the former as a system of relations which are true of but not akin to the objective system; our ideas of the world contain its meaning as the

words of a book contain the thoughts and feelings of its author. This idealistic position is adopted by Berkeley, but the psychological groundwork is different. Though experience plays a large part in Malebranche's work, even to the extent of admitting direct experiment, it is not sense-experience as such. For Malebranche the perception of distance or size is a synthesis of judgments which are not made explicitly (as inferences) but implicitly and inevitably; hence these judgments are called *sensations composées.*[1]

The difference between Malebranche and Berkeley is great, though the superficial likeness of the two expositions often leads to hasty assertions of identity. The nature of the difference becomes more intelligible if we remember that Berkeley makes a reference to Locke's *Essay* (ii. 9, 8) where the basis is not a synthesis of judgments but a co-existence of the data from different senses in one judgment. That is the English empirical basis from which Berkeley starts and by which he separated himself from the whole atmosphere of Malebranche's work. If we remember this connection with Locke and also that with "the learned and worthy Mr. Molyneux," a tutor in the University of Dublin when Berkeley entered there, the differences between Malebranche and Berkeley will not be hard to understand. One instance will make it clear. Malebranche said the moon looks larger at the horizon than at the zenith because there are intermediate objects which affect the "composite sensation"; if we shut out those objects the size of the moon appears to be increased. This conclusion Berkeley explicitly denies and adopts the explanation of difference through density of the atmosphere, which was the theory supported by Regis against Malebranche.[2]

Berkeley's own theory depends on the assumption that extension and magnitude are primarily objects of the sense of touch. Hence distance and visible magnitude have a constant relation to touch; for the child begins by handling objects as it looks at them, and so learns by imperceptible degrees what the visual image means in terms either of touch (movement over the surface) or motion (movement from far to near). This is an empirical derivation of the

[1] Cp. pp. 229 *et seq.*

[2] See Klemm, Eng. trans., p. 324.

perception of size and distance, due allowance being made for development. It implies a theory of space and of things as occupants of space which seems to be unhesitatingly adopted; no analysis is made of space apart from the questions of more or less extension and the "outness" of objects.

Historians have noticed casually how much affinity there is between Berkeley's idealism and the teaching of Plotinus. Vision is at all times a subject which leads the mind from consideration of the senses to reflection on the inner light. Judging from changes of expression and from the way in which passages were changed in successive editions, Berkeley was never ignorant of the general problems which are bound up with a theory of vision. This is shown by the vigour of his onslaught when he attacks abstract ideas. Taking the word "idea" with all its burden of acquired meaning, he demands a visualization of every mental content. Consequently he becomes nominalistic; for every image implies an object which can produce an impression, but no such object or image is given to correspond with the general and universal terms. Logically Berkeley could reach the same conclusion; for since objects are defined by him as collections of ideas, there could be no sense in abstracting an idea from an object which is itself essentially an idea (*esse is percipi*). So far the traditional view of the idea (*species impressa*) dominated Berkeley's arguments. But another traditional view claimed his attention and grew in importance as the theological outcome of his nominalism became evident. If we only know objects through "ideas imprinted on the senses," there can be no knowledge of the self or soul; for it is absurd to suppose that the soul impresses itself. In this indirect manner and in direct descent from the mediæval problem expressed in the question "Does the soul know itself?" Berkeley came to the point of seeing that his premises were inadequate. He admits that we have a notion, not an idea, of ourselves (*Princ.*, § 89), and this is the beginning of a significant change in the whole outlook. In the second edition of the *Principles* a reference to relations was introduced; it was now admitted that the idea of a relation was not to be confused with a relation

between ideas (as impression); moreover, time and, in the *Siris*, number were now seen to be something not impressed on the mind as a sense-datum but constituted by an operation of the mind in a different sense, a specific act. Finally, then, the original objection to "abstract ideas" must be revised. Number and personality are two notions which refuse to fit the original scheme; assisted by Plato's *Theætetus*, Berkeley virtually abandons the empirical position. We may regret the lack of any proper development of the new point of view, but its inauguration is important and deserves more notice than it has received. At a later date we shall find a similar demand for a new psychology being made in the interest of serial order, form, and relations. At a period so uncongenial it was not probable that such a demand would meet with response, however clearly it might be formulated.

On the whole Berkeley felt no need for a physiological supplement to his psychology. He would settle the whole matter so far as psychophysiology is concerned by announcing that the brain is an idea (*Princ.*, § 146), a method that has found favour with later idealistic writers. But this attitude also seems to have proved unsatisfying to the more mature Berkeley. He wrote on Passive Obedience, and had occasion to speak of "natural antipathies implanted in the soul" and of custom as a second nature. He declared that all rational beings are by nature social, and warned men against following emotions arising from the blood and humours. In brief, when conduct was the subject of his reflections, Berkeley was compelled to consider human nature more concretely than he had been at first inclined to do. He could still write wittily about a new kind of snuff which might be administered to a person and enable the soul to attach itself to some other pineal gland! To the Cartesian dualism Berkeley could never descend. But the "spirits" of Willis exercised a subtle attraction. They too were not unlike light! And so, in the end, Berkeley's psychology has the appearance of a reformed doctrine. Ideas have ceased to be the alpha and omega; form and relation have become factors in knowledge and an index of mental "acts" which are not Locke's "operations," of "notions" which are not

"ideas"; finally the limitation of thought to God and the soul has been overcome far enough to admit recognition of secondary (scientific) causes and allow our author to remark "that there is really such a thing as vital flame, actually kindled, nourished and extinguished, like common flame, and by the same means, is an opinion of some moderns, particularly of Dr. Willis in his tract *De Sanguinis Accensione*: that it requires constant eventilation, through the trachea and pores of the body for the discharge of a fuliginous and excrementitious vapour; and that this vital flame, being extremely subtile, might not be seen any more than shining flies or *ignes fatui* by daylight. This is Dr. Willis's notion: and perhaps there may be some truth in this, if it be so understood as that light or fire might indeed constitute the animal spirit or immediate vehicle of the soul!" (*Siris*, 205).

§ 3. The "new way of ideas," as understood by Locke, was a description of the human mind more or less governed by the two categories of content and form. It is often said of Locke that he refuted in the fourth book of the *Essay* what he asserted in the second. That point of view is not maintained here. On the contrary, it is asserted that Locke in his second book was concerned primarily with the contents of the mind; he rejected innate ideas as specific innate contents (without thereby denying mental activity as such), because certain persons (not Descartes) were at that time asserting them. In other words, the only source of those ideas which can be referred to external objects must be actually existing objects. In the fourth book we come to the question of ideas that are *real*, but not referred to *things*: the reality of these ideas consists in being what they are, not in being attached to externally existing objects. The critical difficulty which remains when we have accepted this double point of view is to determine the boundaries of the "kinds of knowledge." Berkeley's development shows that he became more and more impressed with the importance of the second topic, the form of thought and its constructive aspect. This movement consequently tended to reduce the importance of objects

as external agents capable of supplying content to the mind, making them indistinguishable from contents and therefore only psychic events.

This epistemological development had the effect of sharpening Locke's distinctions and giving them the appearance of depending on metaphysical assumptions, primarily that of the difference between soul and body. The result is seen in Hume.

The secret of Hume's success in refining ideas and failure in explaining facts lies in his positivism. Taking that term as a substitute for "scepticism," and ridding ourselves of the sentiments which seem eternally bound up with the opprobrious epithet "sceptical," we may proceed to estimate Hume's contribution to psychology. A change of terms ushers in the new scheme. For sensation and reflection we are now to read impression and idea. This is intended to eliminate any lingering notion of two sources or two kinds of mental operations. If Locke's "sensation" pointed to a *res extensa* and his "reflexion" to a *res cogitans*, our new terms will shut out all such implicit references and leave only psychic events differing in the mode of appearance. Impressions are more vivid; ideas are less vivid. Such is the formula by which Hume notifies us that if we enter into our own minds we shall find neither matter nor self, but simply events. Here then we have, at the best, a pure psychology or an analysis of the mind undertaken in the spirit of positivism with no pre-suppositions: it remains to be seen whether pre-suppositions can be thus eliminated or whether the process does not amount to casting out some pre-suppositions in order to substitute others.

The crucial questions for this type of positivism are those of order and system. Hume was from the first aware of his enemy. If an idea is only *weaker* than an impression, we cannot immediately infer that it is therefore older, or secondary, or in any other way equivalent to a "decaying sense." [1] To assume that every experience runs its course from a primary impression to a later evanescent stage called an idea is to introduce again the rejected fictions of an object which impresses and a subject which is impressed;

[1] As used by Hobbes, *Lev.* i. ch. 2.

this must be avoided, and Hume even goes so far as to suggest that in some cases the idea might come first. He asks whether, given a series of colours, we might not supply a colour which was not actually given, that is to say attain an idea prior to any corresponding impression (Treatise i. section 1). What Hume meant by the problem is difficult to see, but the significance of the question lies undoubtedly in the fact that Hume did not intend to regard "impressions" and " ideas " as mere names for sense and " decaying sense." Yet it is equally difficult to see what meaning can be given to the terms if we are not prepared to treat the force of ideas as in some way having an inverse ratio to their distance from the time of the impression. For introspection does not actually show that every idea is less vivid than every impression ; if we admit exceptions it will be necessary to inquire into attention and other selective activities, so that finally Hume's limits will be painfully obvious.

There can be little doubt that the concept of force obtruded itself into Hume's views about impressions. Physical science was still the ideal of philosophers, and Newton was as Locke said, " never-enough-to-be-admired." Suspicion deepens into certainty when we come to Hume's doctrine of association. The way was prepared by a perfunctory treatment of memory, which is made equivalent to order and position, and a discussion of relations. The subject of relations is also inadequately treated by Hume, for though he noted a distinction between ideas of relation and relation of ideas, he nowhere explains the significance of either phrase. In the end he is content to state the principles of association as explaining the relations of the ideas one to another and to curtail even this exposition in the later *Inquiry*. The famous passage in the Treatise runs thus (i. 1, 3) : " Here is a kind of attraction which in the mental world will be found to have as extraordinary effects as in the natural, and to show itself in as many and various forms." Our philosopher here speaks the language of physics : he claims to be the Newton of psychology.

Hume's doctrine of Association was at one time thought to be a plagiarism. It was asserted by Coleridge, as an original discovery, that Hume took it from the commentary

of Thomas Aquinas on Aristotle's *De Anima*. Evidence was produced that Hume possessed and read a work by Thomas Aquinas, but the proof of plagiarism was weak. Croom-Robertson remarks that Locke overlooked the general psychological importance of association, and Hume took up this point, "forgetting or ignorant of Aristotle." In any case, the types of association named by Hume are different from those of Aristotle; Aristotle named similarity, contrast, and contiguity, while Hume's list includes resemblance, contiguity, cause and effect. Of these the last is the most significant. Locke appears to have regarded association as operative in producing trains of ideas when the synthetic power of the mind was not being exercised. Hume was convinced that the self and its synthetic power were names for nothing but actual connexions between ideas: he differs from his predecessors in so far as he does not make association equivalent to some forms of synthesis but a substitute for synthetic activity. Locke was considering why the contents of the mind were sometimes arranged in a kind of unregulated order: Hume, intending to drop all reference to the mind except as a name for the contents themselves, quite logically proceeded to treat the order and connexion of the contents as the whole sum and substance of what others regarded as activity of the mind. This and not the mere catalogue of principles was what gave to Hume's doctrine of association its peculiar significance.

In spite of a lucidity in expression which defies competition, Hume was in many respects very obscure. The Enlightenment to which he belonged was always liable to the vice of superficiality. Many points raised in the Treatise are hard to understand: the *Inquiry* affords no help, for Hume then omits them entirely. We may grant that Hume's aim was to eliminate all irrelevant factors and treat the nature of man directly, without pre-suppositions and in a positive manner. But the fact still remains that the work done by "the soul" cannot be wholly ignored: if there is no "self" to operate, there are still the undeniable operations: and so far as his psychology is concerned Hume is compelled to refund all the requirements by exploiting Belief and Habit. In view of the difference between the

Treatise and the *Inquiry*, it is justifiable to suppose that Hume lost what faith he originally had in formal principles of psychology. Observation of men and manners led him to think that emphasis should be laid on actions, that introspection was of little value, and therefore an objective description of conduct was alone valuable. It is a mistake to regard Hume as one who aimed to explain mental operations. He regarded the craving for explanation as a mere straining after the impossible. His terms, belief or custom or cause, are descriptive titles for modes of behaviour, tentative formulæ which enable us to find our way at any time or place through the bewildering chaos of events. No metaphysical disputes about the soul really touched Hume: he acts the part of the scientific inquirer for whom the "ultimate reality" is too high so that he cannot attain to it. The outcome of this attitude was, in one direction, a mere neglect of fundamental questions; in another direction it was the revelation of new possibilities in comparative study of men and of animals, but more particularly in the consequent naturalism which gave significance to the emotions and the will. Dispensing with an "ultimate" here as elsewhere, Hume eliminates from the concept of the Will all suggestion of substantive reality or power: as positivist he accepts nothing but the inner and outer events ("the motion of our body follows upon the command of our will") and the word Will should accordingly be employed only as a name for that class of events in which there occurs an observed sequence consisting of the strongest motive as inner event and change of place as outer event.

Hume takes up the study of the Passions upon the plan used in the treatise on the Understanding. The life of the mind comprehends two classes of "impressions," the original and secondary (Treatise II. i. 1). In other words, those inner events which have no psychic antecedents are original; the rest are derivative: the former can only be described, the latter admit of some explanation or resolution. In the sphere of the Understanding, the impression is the actual given sensation; to this corresponds the "original" state of pleasure or pain. In the complex state of mind called a "passion," the sensation of pleasure (or pain) would be

accompanied by a feeling of hope, fear, or some similar affection, so that the *primary* feeling takes up secondary states, and the scientific treatment of the affections will be the "experimental" method of discovering the types of feeling, their causes, and their connection with ideas.

Pleasure and pain are the two fundamental facts from which we must begin. Certain states of the organism (heat, cold) are felt as comfortable or uncomfortable, and are in consequence called good or bad. There are also tendencies of the mind which give rise to feelings of pleasure and pain according as they are assisted or obstructed by objects and circumstances; e.g. the distress of an enemy (the term implying previous hatred) is pleasant, as satisfying the tendency toward revenge. Thus the affections can be classed as direct or indirect.

The direct affections include desire and aversion, joy and grief, hope and fear. The states are classed in pairs because the basis is dual, namely good and evil. The distinction between the three pairs is dependent upon additional factors: desire is concerned with good as present; joy, with good as assured in the future; hope, with good as probable though remote. Hope and fear differ somewhat from the other states of feeling through their tendency to mingle. Plato and Aristotle noted this tendency to a mixed state. Descartes restated this and explained it as due to oscillations of the mind in the estimation of probabilities (Passions, 165, 6). Spinoza followed the same line (iii, 12), making hope an "inconstant joy." Hume does not differ essentially from this position, though he states the mental condition as a mixture of joy and sorrow, rather than hope and fear. Hume also goes further than his predecessors in thinking that similar feelings always have a tendency to produce their opposites: for the feelings correspond with ideas in the mind, and the ideas move by association; as, for example, the idea of impending evil leads to the idea of escape which (so long as it is entertained) arouses the feeling of hope in place of the original fear. This theory of connexion is more fully worked out in the discussion of indirect affections.

Direct affections imply nothing more than a cause; indirect affections involve an object as well as a cause. The

object may be oneself, or something other than oneself. The types are Pride and Humility, in the case of self-regarding affections, Love and Hate in the case of other-regarding affections. For example, wealth belonging to oneself is the *cause* of joy which has for its *object* one's own increased importance: hence Pride. Pain (as cause) referred to a person (as object) produces the passion of Hate.

It is necessary to notice here that the person is not the cause of the passion; the cause is the inner state which is by us associated with the idea of some person or thing, here denoted as object. This is important, because Hume is anxious to avoid the idea of natural objects of love and hate; he does not believe that there are such natural objects of passions, but that any object, combined with an affection, becomes the object of an indirect affection. Here we see Hume's real drift. The guiding principle of his discussion is the destruction of *a priori* theories which really begin with the idea of objects that *ought* to be loved or hated. This ethical point of view Hume intends to exclude from his scientific "anatomy of the feelings."

Love and Hate are not (like pride and humility) mere states; they include an impulse to action. Yet, natural as it would seem, Hume does not deduce benevolence and malevolence from Love and Hate. He classes them as direct, instinctive, and such as cannot be further analysed or explained (*Tr.*, ii. 3, 9). Aristotle declared that Love was a tendency to wish good for another; but Descartes declared this was not the essence of love, declining to consider its nature as identical with its *effects*.

Hume's general principle is clear. He proposes to resolve complex passions into simpler states of feeling associated with ideas. His attempt to do this is technically vitiated by a fault of exposition. The association, as understood by him, could only be the association of the idea of an object with the idea of the feeling. We require to know whether the revival of an idea of feeling is always equivalent to a revived feeling. We also require to know whether the "association" operates by similarity, contiguity, or causality. Each of these principles offers peculiar difficulties, and it is clear that Hume has followed his own theory too

hastily. Nothing but elaborate inductive research could give a satisfactory answer; Hume's idea of "experiment" exhausts itself in the creation of imaginary cases resolved in a way that illustrates the principles cleverly, but not perhaps rightly.

The finest product of this scheme was the doctrine of Sympathy. Here, contrary to his usual tendency, Hume becomes positively rhetorical. The fact of sympathy is fully recognized, and its importance for the psychology of "political animals" is clearly seen, but the explanation of this unselfish selfishness is altogether too complex. The idea of another person's feeling is said to be associated with the idea of oneself, and so the required liveliness is imparted to the otherwise neutral conception of another's joy or sorrow. It is enough to remark that Hume himself finally saw that this was mere subservience to the rules of a system, and, seeing it, he abandoned the false method. It is extremely probable that true sympathy is dependent upon the possibility of reviving the memory of a corresponding experience; the ordinary formula is "I feel for you in your distress, I have known what it is to suffer." But this is not at all what Hume meant by his analytic explanation of sympathy; it is, perhaps, what he meant when he abandoned that explanation.

The development of the law of comparison produced a more important result. As the idea of association grew more definite, the associated elements became less rigid and atomic. This process was considerably furthered by taking into account the affective side of consciousness. For it was then obvious that the general temper of the mind greatly altered the objects usually called the "same." If A is larger than B, B larger than C, the mind accommodated to A would feel C to be much smaller than if it was previously accommodated to B. The idea is not, for experience, a changeless quantity; it is relative, inasmuch as it is presented always in contrast to a preceding state. If this is true in the case of a pleasure contrasted with a pain, it is also true for the sense of space: the small room is oppressively small to the nobleman accustomed to spacious halls; to the cottager it is the ideal of comfort. In short, Hume

sees in a new light the fact that all ideation is, in part, feeling; and the continuous change of contents is for the mind a continuous comparison making each state relative to its antecedents.

§ 4. To this period belong the life and works of David Hartley. Born in 1705, Hartley was trained for the clerical profession, to which his father belonged; but finally he abandoned his calling and became an industrious physician. The complexity of his training was reproduced in his interests; his mind was both exact and speculative, his minute observations were joined with cosmic theories; natural science, mathematics, optics, poetry, physiology and theology—all in turn attracted his curiosity and absorbed his energy. The work by which Hartley is best known, *Observations on Man, His Frame, His Duty and His Expectations*, was slowly evolved during sixteen years of patient toil (1730–46). An outline of the theory was first published as an appendix to a medical tract under the title *De Sensu, Motu, et Idearum Generatione*. The larger work was published in 1749, and seems to have attracted little or no attention. In 1775 Priestley edited a new edition, omitting the theory of vibrations and most of the theological discussions. A translation appeared in Germany in 1778 [1] and from this a complete edition was issued in English by the author's son in 1801. The real influence of Hartley was thus postponed until the nineteenth century, and the great exponent of his views on the human mind was James Mill.

Hartley's work comprises three parts which are really unconnected. The first contains the physical doctrine of the vibrations; the second is concerned with the operations of the mind; the third treats of the Christian religion. The want of real connexion is obvious from the fact that Priestley saw fit to publish the middle part without the other two; and the author himself frankly says, "the doctrine of Association may be laid down as a certain foundation and a clue to direct our future Inquiries, whatever becomes of that of Vibrations." [2] On the other hand the author

[1] Prepared by Rev. Dr. H. A. Pistorius (Ruegen), with notes and essays, 1791 and 1801.

[2] Pt. I. Sect. 1, Prop. 11.

spares no pains to show the value of his hypothesis as an explanation of all the workings both of body and of mind. In this lies the whole value of his work. The possibilities of a physiological psychology were at the time wholly unsuspected. Hartley takes his place in history as the originator of this branch of science. The particular form of his hypothesis may no longer claim any serious attention, but the hypothesis itself is of primary importance. That hypothesis is, in brief, that mind and body always co-operate and there is a physical equivalent for the mental, a mental equivalent for the physical, operation in every case. The development of this hypothesis occupies all those parts of his work which concern our subject.

Hartley leaves us in no doubt as to the origin of his ideas or the writers with whom he has the closest connexions. Newton's remarks at the end of his *Optics* influence the whole theory of vibrations. The preface states " About eighteen years ago I was informed that the Rev. Mr. Gray, then living, asserted the possibility of deducing all our intellectual pleasures and pains from Association. This put me upon considering the power of Association." The " general plan " is declared to agree with that of Descartes and Leibniz ; the point of agreement is the common freedom from " that great difficulty of supposing, according to the scholastic system, that the Soul, an immaterial Substance, exerts and receives a real physical influence upon and from the Body." Here there is a clear statement that the basis of the whole work is not materialism but parallelism, the hypothesis being " that there is a change made in the medullary substance, proportional and correspondent to every change in the sensations."

The views of Hartley upon sensation as a physical process were taken direct from Newton's *Principia*. In brief, the object of sensation produces the idea of sensation by making an impression on the organism and creating a disturbance of the nerves ; these disturbances are called vibrations and said to be " motions backward and forward of the small particles, of the same kind as the oscillation of the pendulum and the trembling of particles of sounding bodies." The nerves are regarded by Hartley as " solid capillamenta

according to Newton " rather than " small tubuli according to Boerhaave " ; the theory of vibrations requires the substance of the nerves, spinal marrow, and brain to be uniform, continuous, and devoid of any opacity that might obstruct the ether. For in reality the doctrine of vibrations is a doctrine of ether ; the small particles of bodies emit an attenuated Air or Aether, which is a thin elastic fluid ; this has a " repulsive force in respect of the bodies which emit it," and its particles repel each other. The real transmission of movement is therefore along the surface of the nerves and the nerve acts as a conductor for the transmission of this movement. The use of the lightning conductor would be a good analogy.

It is important to notice that the vibrations are propagated along the nerves, for the nerves themselves only account for the place and direction of the vibrations which are like the " free propagation of sounds along the surface of water." The brain is not a gland filled with a secretion, but an expansion of the medullary substance, a mass of fibrils which can be made to vibrate in different directions " according to the different directions of the nerves by which the vibrations enter." The nerves and the brain are thus described as instruments which subserve the action of the ether ; they have no activity of their own except in so far as they react to the " repulsive force " of the ether. As we noted above, only place and direction are said to depend on the nerves ; the degree and kind of motion, the remaining two " sorts of difference," are ascribed solely to the vibrations which depend upon the ether.

The theory of Hartley is not so clear as it would seem to be from the account usually given of it. The term " vibrations " covers three distinct things, the action of ether, the action of nerves, and the interaction of both these actions. But in the end (Prop. 5) we are told that matter is not endued with the power of sensation ; there may even be " an infinitesimal elementary body " between the soul and the " gross body," in which case all this machinery would explain nothing. The hypothesis of vibrations would then be true " in a very useful practical sense," yet not so " in an ultimate and precise one." This shows that Hartley's

references to Leibniz and Malebranche are significant; he was at heart an occasionalist, and occasionalism was a very appropriate theory for one who combined physiology with theology. The fault to be found with this type of physiological psychology is in its speculative character; but Hartley may still claim the credit of being the first to take serious account of the fact that mental and bodily processes are conjoined in the operations of the senses.

The general result of the doctrine of vibrations can now be summed up in a formula. The impression of the object gives rise to vibrations which travel along the nerves to the brain, meet and interact in the brain, and then descend from the brain to the muscles. The chain of causation need not be broken at any point, and the explanation of consciousness either drops out altogether or we are to assume that vibrations are equivalent to consciousness of vibrations. This point was not clearly seen by Hartley; it was the natural ground for accusations of materialism and shows how far Hartley was from understanding the full significance of his own teaching. The activity of mind, here tacitly omitted, was to find its way back into psychology slowly and with difficulty. Meanwhile the supernaturalists were to be chastened with a naturalism which they could not accept and could not refute. The power of this naturalism belonged to its method rather than its matter. If we ignore altogether the hypothesis of vibrations, the scientific method of Hartley would remain undisputed. To apply the method of analysis and synthesis was his professed object; to find a way of reducing all phenomena to a single law after the manner of Newton was his ideal. These principles were maintained, even though at the last it is evident that the dualism of mind and body has not been overcome. Vibrations, Hartley admits, may have no significance in the sphere of mental operations; but the law of Association seems to bridge the chasm. In every creature there is from the first a natural disposition, and there are consequently natural vibrations existing in the body before birth. "As soon as the child is born, external objects act upon it violently and excite vibrations in the medullary substance"; these are called preternatural. The impression made by the object is,

therefore, never "pure." The natural vibration (N) has to be overcome by the preternatural vibration (A); there is a tendency for N to establish itself again, but the reflected action of A finally produces a result *a*. This explains the increased facility which is produced by repetition and habit; for *a* supplants N permanently, and we have in place of the first nature a second nature. The process, says Hartley, is made more rapid by the fact that "the several regions of the brain have such a texture as disposes them to those specific vibrations which are to be impressed by the proper objects."

If we now imagine a number of vibrations A, B, C, D to be excited at one time, the natural vibrations in each part will be partly overcome; so that if A occurs again, B and C and D have a latent readiness to occur. In time this will become a necessary sequence, so that the occurrence of any one of the vibrations will cause the occurrence of all the others. This is the fundamental principle of Association. It is not an association of ideas but of sensations, and of sensations only as being identical with vibrations. It is not the psychological but the physiological law of association that Hartley seeks to establish; the association of ideas follows as a corollary. For the vibration A is the physical concomitant of the sensation A; and the residual vibration which is left when the object ceases to act on the sense-organ (the so-called little vibration or vibratiuncle) is the concomitant of ideation. So we come to the final formula of association: "If any sensation A, idea B, or muscular motion C be associated for a sufficient number of times with any other sensation D, idea E, or muscular motion F, it will at last excite D, the simple idea belonging to the sensation D, the very idea E, or the very muscular motion F." As Hartley points out, the only thing association cannot do is to give the sensation D; it is held to be an adequate account of all else.

In thus establishing a connexion between sensation, ideation, and motion Hartley gives to association a meaning quite distinct from that given it by Locke or Hume. A closer analogy would be found in Hobbes and, through Hobbes, in Aristotle. For this is not merely a way of saying

that we have trains or sequences of ideas; it is rather an attempt to exhibit man as a microcosm, a world ruled by law and by the laws of the universe outside him. Hume could say that association was a kind of attraction and, in a certain sense, all the writers since Newton's time felt a vague impulse toward doing for the world of mind what Newton had done for external nature. But Hartley differs from all these; from Locke in being more systematic and precise about associations; from Hume in emphasizing physiology. In Hartley we see a man whose mind naturally took up and maintained the point of view of the organism as a whole.

The whole work of Hartley is summed up in the two words Vibrations and Association. The former term represents the elements; the latter, their relations. There are simple and complex sensations; simple and complex ideas; automatic and voluntary or semi-voluntary movements. The character of all associations depends on the previous coincidence of vibrations; some are received synchronously, others successively: these are the two types of association. Hartley discusses the senses individually and shows the operation of both principles in each case: he analyses the desires of the sexes toward each other in a chapter of some value, and describes in detail the character of involuntary or automatic actions, with the steps by which they become, in some cases, voluntary. The section closes with a significant criticism of the Stahlians and the remark that "what is mechanical *may* both be understood and remedied."

The third chapter of the first part opens with a section "Of words and the ideas associated with them." In Prop. 79 the following statement is made: "Words may be considered in four lights. First, as impressions made upon the ear. Secondly, as the action of the organs of speech. Thirdly, as impressions made upon the eye by characters. Fourthly, as the actions of the hand in writing." Hartley proceeds to say that "we learn the use of them in the order here set down," so that he intends this to be both a genetic and an analytic account of speech. As an analysis it is remarkable and clearly prepares the way for the later work on speech, i.e. the study of aphasia and its cognates. This is not only

true in the general sense but can be stated explicitly. For Charcot says (*Leçons du Mardi*, I. 362) that the root of aphasia is in Hartley, whom he studied thoroughly: he expressly says Hartley "a parfaitement reconnu la véritable constitution de ce qu'on appelle le mot"; and then proceeds to show the relation between the analysis quoted above from Hartley and the theory of four elements represented by four images which he himself elaborated.

The protest which Hartley made against animism in the sphere of medicine accurately foreshadows the general tone of his work on the "Phenomena of ideas, or of understanding, affection, memory and imagination." All these come under the principle of association, and this way of analysing them offers nothing of particular interest. The nature of assent and dissent is a subject about which a reader would naturally feel curious; but the mysteries of these operations are quickly dispelled. "The cause that a person affirms the truth of the proposition, twice two is four, is the entire coincidence of the visible or tangible idea of twice two with that of four, as impressed upon the mind by various objects." The rest is in a similar vein.

A section devoted to the intellectual faculties of brutes (Prop. 93) shows a distinct leaning toward a comparative method. Hartley accepts the Cartesian view that all the movements of animals are "conducted by mere mechanism," but he would admit that they are not "destitute of perception." Instinct is explained as due to natural vibrations, so that animal intelligence and that of undeveloped human beings are closely allied. Animals "much resemble persons of narrow capacities and acquisitions who yet excel greatly in some particular art or science," for such persons show great ingenuity in the things to which they are accustomed, but if much put out of their way they are "quite lost and confounded." While this does not explain much, it is a theory surprisingly free from narrow prejudices.

The intellectual pleasures and pains are divided into six classes, namely of imagination, ambition, self-interest, sympathy, theopathy and the moral sense. Vibrations, Hartley remarks, "seem of little importance in this part

of the work." Everything is in fact explained by association. The most striking feature of this section is the careful observation of facts which it displays, and especially the observation of children. Two passages may be selected as typical of this very commendable treatise on the affections.

The first (ii. 475) is concerned with the "Affections by which we grieve for the misery of others." In the case of children the following analysis is given: "When their Parents, Attendants, etc., are sick or afflicted, it is usual to raise in their Minds the nascent Ideas of Pains and Miseries, by such Words and Signs as are suited to their Capacities; they also find themselves laid under many Restraints on this Account; and when these and such-like Circumstances have raised the Desires and Endeavours to remove the Causes of these their own internal uneasy Feelings or, which is the same thing, of these Miseries of others (in all which they are much influenced, as in other like cases, by the great Disposition to imitate, before spoken of); and a Variety of internal Feelings and Desires of this Kind are so blended and associated together, as that no Part can be distinguished separately from the rest; the Child may properly be said to have compassion."

The second (ii. 488) belongs to the discussion of "Theopathy," and explains the genesis in the individual of an idea of God: "Amongst Jews and Christians, children begin probably with a definite visible Idea of God; but that by degrees this is quite obliterated without anything of a stable precise Nature succeeding in its room; and that, by farther Degrees, a great Variety of strong secondary Ideas, i.e., mental Affections (attended indeed by visible Ideas, to which proper Words are affixed, as of Angels, the general Judgment, etc.) recur in their Turns when they think upon God, i.e. when this Word or any of its Equivalents, or any equivalent Phrase or Symbol, strike the Mind strongly, so that it dwells upon them for a sufficient Time, and is affected by them in a sufficient Degree."

These examples of the analytic method in two critical spheres, namely the genesis of altruistic feeling and the construction of the idea of God or religious feeling, will suffice to show this author's skill; it may also suggest his

limitations, but Hartley is always worth reading even when he is obviously subordinating his observation to his pre-conceptions.

[Hartley's work was strongly supported by Joseph Priestley (1733–1804). Priestley deserves mention as author of a *History of Optics*, and also a *History of the Philosophical Doctrine concerning the Origin of the Soul*, a treatise added to his *Disquisitions relating to Matter and Spirit* (Ed. ii. 1777). An energetic and rather voluminous writer, Priestley made no distinctive contribution to psychology, but was effective in promoting the kind of materialism which characterized the second half of the eighteenth century. Unlike the physiological materialism of 1860, this position was based on the Newtonian physics: though the prevalent interest in theology made materialism a term of reproach, this doctrine was little more than a demand for the scientific treatment of human nature. Priestley's historical work is of little value now, but the mere fact of its being achieved at that time in a creditable manner is important. Priestley was a severe critic of Reid and the minor Scottish writers; to some extent his criticisms were unfair, particularly when he fails to see how the problems of knowledge differ from psychological problems as understood by a supporter of vibrations. Priestley thought fit, in republishing Hartley's work, to omit the doctrine of vibrations; this was not good judgment since it tended to leave the associationism unsupported by that general conception of a scientific method which the vibrations implied.]

CHAPTER II

CONTINENTAL EMPIRICISM

§ 1. THE eighteenth century was a period of revolution for France both in thought and in politics. With that great climax which is known as the French Revolution we are not here concerned, except to remark that it was a climax and that the steps by which it was reached were neither few nor rapid. The mind prepares what the hand executes, and a just estimate of the century which had its crisis in the events of 1789 must be constructed in part out of an inquiry into the transformations of French thought. The immediate source of the new currents was England, but there are also deeper reasons for the spiritual change which ultimately showed itself in the welcome given to English influences. In the seventeenth century France was aristocratic, self-contained, profoundly ignorant of English thought, and no less profoundly convinced that a country which murdered its king could produce nothing but poisonous literature. In the eighteenth century there was a change. A more liberal spirit began to prevail, travel increased, refugees from England after 1688 settled in France, and after the revocation of the Edict of Nantes whole colonies of French settlers were to be found in England. Thus the channel which separates France from England was bridged by persecution.

Gradually, with the lapse of time, the notion that England was a land of ruthless anarchists became extinct. It was succeeded by an almost equal extreme of enthusiastic imitation. To this above all others Voltaire contributed. Leaving France (1726) in a mood of bitter resentment, this brilliant but acrid person was fascinated by the unaccustomed tone of the new society, especially when its irreligious,

frivolous, and free-thinking aspects were most in evidence. In 1729 Voltaire returned to France equipped for that prodigious activity by which he was to teach Frenchmen the incomparable glory of Newton, Locke, Bolingbroke and others, creating by his efforts that enlightenment which France was destined to experience. In less than fifty years the Paris which Voltaire educated was to gaze in unaccountable rapture on the corpulent and speechless figure of David Hume! Voltaire was the great interpreter; he was ably seconded by the translators who gave to France versions of Richardson, Swift, Pope and others. The literary activity came first: it was quickly followed by a more complete assimilation of ideas as principles of construction, with the result that new works were produced on the English patterns. In these one feature becomes of great importance. It was the middle-class character of English thought and writing, the attention paid to middle-class families and their daily round of actions, the genial and domestic positivism of the people who had tea and the Spectator unwearyingly at the same hour every day—in short it was the natural realism of English writing which seemed to the French a new revelation of the common thoughts and emotions of common people. With a burst of enthusiasm France embraced the idea that apart from monarchs and metaphysics there are ordinary mortals and a science of man.

To the new doctrines Voltaire contributed nothing but an introduction in such works as the *Lettres sur les Anglais* (1733), and apart from the usual accumulation of popular writings there are no writings which deserve detailed mention in a history of psychology except those of Diderot and Condillac. Diderot's work was slight but interesting and influential. He seems to have grasped the inner meaning of the English empiricism and to have been one of the first to interpret its spirit. In his *Lettre sur les Aveugles* (1749) we have an excellent example of that reflective empiricism which sprang from the union of English common sense with French acumen. Diderot's subject was not that of Descartes or of Berkeley: neither vision nor space is treated by him as the topic of chief interest: it is the *man* who is blind,

and the *life* of such a man, that are the objects of his interest. The essay has been rightly admired as an informal but none the less valuable contribution to individual psychology. To Diderot the blind man presents himself as a negative instance, to quote the language of that very Bacon whom the encyclopædists so much admired. As a negative instance, a kind of natural experiment in the art of living without one sense, the blind man furnishes a distinct source of knowledge about the mind. We may ask him what he means by beautiful, by a mirror, by size, distance, or figure. Unlike Descartes or Berkeley, Diderot concerns himself very little with what a blind man experiences on recovering sight: he speaks chiefly about the life that would be lived in darkness. He notes how really hard it is to comprehend this: the judge condemned the blind prisoner to a dark cell and received the reply, "I have been in that for twenty-five years": we think the sun sets on the blind, and forget that it never rises. Perhaps, says Diderot, the metaphysics and morals of the blind are really different from the normal: the clothing required for decency can hardly be essential to people who see nothing, and the "light of truth" can hardly be a significant metaphor for those who give to light no such preponderant value.

We will not continue these samples of the method. The letter *Sur les Sourds et Muets* has the same outlook and aim. Many shrewd remarks about language and meaning are mixed with general speculation on the character of a life thus limited. A further flight of imagination leads to the question whether there is not a sense in which all people are deaf and dumb, unable to comprehend what others mean or to express their own meaning in terms of another's experience. Both essays are remarkably suggestive and almost reach the level of a definite attempt to construct an individual psychology, all the more notable because the eighteenth century tended so strongly to enthrone the typical normal man and draw all its pictures on one pattern. By treating the senses in this separate fashion and creating the idea of persons who possess one or more senses only, Diderot came very close to that analytic method which we see more fully developed in Condillac.

§ 2. Étienne Bonnot, Abbé de Condillac, was a contemporary of Lamettrie and the encyclopædists, but he stood aloof from them in his work and differed from them in his views. He was born in 1715 and died in 1780. He had great contemporaries, such men as Buffon, Voltaire, Rousseau, Diderot, Helvétius and d'Holbach. His hard and continuous labour earned him a solid reputation in his own time and extensive influence among later writers. His life was not eventful; the most important task which he essayed, beyond his philosophical studies, was the education of a young prince. This duty he took very seriously, and it seems to have been an opportunity to employ his powers of observation. He was regarded as an authority on the methods of education, and wrote his *Logique* (1779) in answer to an appeal from the educational authorities of Lithuania. In the psychological writings of Condillac we may trace the effects of his interest in the development of the mind, however little the mind of his pupil could have followed the course he describes.

Locke was the author who most directly affected Condillac. In Locke he found an attempt to trace the growth of the mind from its simplest states to its full complexity. He fell at once into Locke's error, the belief that development could be regarded as increased complexity. This point of view was much in vogue, and Condillac was even accused of stealing his method from others, particularly from Buffon, who had hit upon the idea of describing the first man awaking, with all his powers but no experiences, to discover the world around him. The accusation was groundless: the idea was in the air, but Condillac merely followed that quest for a pure experience which had been pursued by everyone since Descartes.

Condillac thought that Locke was wrong in beginning with sensation and reflection.[1] He proposed, instead, to simplify matters still further by beginning from sensation. This was purely a device of method. Psychology for Condillac is a branch of metaphysics, so far limited as to be the science not of the soul but of the mind. A belief in the substantial

[1] Before the *Traité des Sensations*, 1754, Condillac merely restated the position of Locke on this point.

reality of the soul and in its activity is pre-supposed; materialism is explicitly rejected; and the action of matter upon mind is accounted for on the principles of occasionalism. Condillac does not begin with the senses: he begins with sensations, taking his stand upon the inner fact with little reference to anything else. Though he recognizes the physiological aspect of mental phenomena, his work in that direction is of no importance: his occasionalism absolved him from its problems but did not save him from being criticized by Bonnet and Cabanis for this deficiency. The advent of anatomy and cerebral physiology really divides Condillac from his successors.

The form in which Condillac states his theory is picturesque. He creates the fiction of a statue [1] and endows it with one fundamental faculty. This faculty is a sense, and smell is chosen before the other possible senses, because it has the least amount of complexity. This sense furnishes the simplest imaginable sensations. The statue is not to be regarded as passive, for a sensation is a mode of consciousness and implies an activity of the soul. It is, however, relatively passive, for it does not at this stage exercise any of those powers which are afterwards brought into play. If we accept this beginning, the rest follows easily. The sensation first received occupies the whole power of the mind, so that its mere persistence constitutes attention. If a second sensation arrives, it bears a certain relation to the former, the perception of this relation constituting comparison. If instead of being together in the mind, the second seems to throw the former sensation back, we have what is called memory. These modes of consciousness are therefore primitive activities which may be described as nothing more than transformed sensations.

The point upon which disciples and critics naturally seized was the transition from sensation to attention. Those who preferred to follow Condillac gave up this point in the master's teaching. Whether definable or not, the position taken by Condillac seems to be due to his exclusion of will

[1] A heated controversy arose over the origin of this fiction: it was claimed by Buffon and several contemporaries, but was assigned by the learned to Descartes, Arnobius, Cicero, and even Herodotus!

from the first sketch of the mind. He did not mean to exclude activity, but he implies that the mind may be so occupied with a single presentation as to be absorbed in it alone. He postulates a sort of fundamental interest, and he means by attention a kind of fascination, an activity which is not volitional but composed of automatic retention and interest. This would really approximate to the *idée fixe* of later writers.

To continue the scheme : after the modes of consciousness described, the stage of ideas is reached. Here there are three distinguishable operations of the understanding : when different things, qualities or parts of a whole are considered and judged, there is reflection ; when attention is directed to a memory or unites two ideas in a way not given by sensation, we call the process imagination ; the union of judgments, finally, is reason.

The same scheme is carried out in terms of the affections. Here the basis is felt want ; want, when there is definite direction toward an object, is desire ; desires become passions ; assurance that the object is obtainable constitutes hope ; and when nothing obstructs the mind in its outgoing toward the object, we say there is volition.

A bare epitome of Condillac's exposition hardly does him justice. His aims must be clearly grasped if we are to reach a true estimate of his significance. Incidentally, comparisons are of great use for this purpose. Condillac, as we have seen, makes reflection arise out of and, logically, later than sensations. He does not propose to make an absolute division between ideas of reflection and ideas of sensation ; the latter term only means that we think of the ideas as due to the objects of sense, while the former implies that we take the idea simply as a phenomenon. Condillac thinks that Locke did not really get away from the obsession of innate ideas ; he is himself more thorough and tells us that all general ideas are merely ways of regarding special or particular ideas. When we consider similarities we move toward general ideas ; if we consider differences we make species ; as both are operations of the mind there is no need to assume that the general ideas point to any distinct class of objects, the real universals for example.

Psychology, within its own limits, must side with the nominalists.

Since sensation is the root of all our understanding, there is no absolute need to have more than one type of sensation. This is the point of Condillac's paradoxical method. Each sensation is, in fact, a single irreducible aspect of the understanding. So that if we start from smell, we may go on to attention to smell, comparison of smells, judgment and reasoning about smells; a sense denotes a complete sphere of understanding, just as a science is limited to one class of objects. The fact that we have five senses only means that we have five different ways of knowing our environment; it is a pure error to suppose that mental complexity can only arise from a plurality of sensations. Condillac thought that the concept of sensation had not been fully elaborated by his predecessors; this was the task he set himself, and his principle work was entitled *A Treatise on Sensations*. The strongest point in Condillac's work is this insistence on the fact that the higher functions of attention and judgment are not to be regarded as an independent stratum of mental life; there is complete continuity in the scale of faculties, and one type of sensation is enough to begin and complete the scale. The further analysis of the understanding is carried out by considering, in detail what each type of sensation actually contributes to our total knowledge of the world. Smell, taste and hearing are the most simple; touch gives an idea as well as a sensation, because it conveys the notion of the external object; sight is complicated by the fact that judgment enters into its normal activity. In his treatment of vision Condillac followed Berkeley, for, though in the *Essais* he combated Berkeley's views, he afterwards repented and joined Voltaire in supporting the New Theory. The rest we may leave without further comment.

Condillac is the last writer to follow out the idea of a pure experience on the lines of descriptive analysis. Locke had inaugurated that development, and in his lack of clearness avoided the errors of extreme definition. In spite of his trenchant criticisms, we feel that Condillac had less insight into the complexity of mental life than Locke; psychology,

in pursuing the analysis of the understanding, seems to have lost touch with the fulness of life. What was lacking in this respect was provided richly by the genius of Leibniz. At the time when he wrote, Condillac did good service by furthering a general tendency toward direct treatment of the facts of consciousness. His contemporaries felt the inspiration of his work; they rejoiced in a philosophy that freed them from the shackles of metaphysics. Men of science read Condillac; the ideologists proclaimed him the sole French thinker of the eighteenth century. He himself had no doubt about the inferiority of his predecessors. Descartes, he said, had never discovered the real source of our ideas; of Malebranche he said, with becoming smartness, that not knowing the source of our ideas he referred them to God. In acknowledging, as he often does, that we cannot attain these transcendental verities or know anything about God, eternity, substances or even ourselves, Condillac shows a healthy sense of limitations. Yet he failed to see how transcendental his own method was. By starting with his "statue," he put himself outside the limits of humanity quite as much as if he had begun with angelic existences. His concept of the solitary individual is as unscientific as any hypothesis can be; it is a new way of deducing entities from nonentity. The merits of the proceeding depend largely on its failure. In spite of himself Condillac uses the term "we" as if he had begun from a fully developed conscious person. It is on record that at the end of his life Condillac said he had neglected too much the idea of personality, the true subject of the whole analysis. This was the point at which his inadequacy was to be most keenly felt; the next development of French thought, the spiritualism of Maine de Biran, was created by a sense of this defect. Yet Condillac's influence remained paramount; his affinity with English empiricism gave him a place of honour when, after Maine de Biran, Taine urged the return to analysis and joined his praise of Condillac to his admiration for John Stuart Mill. It is supposed that Condillac largely influenced Rousseau and inspired him with ideas on education. Though he began with a misleading hypothesis, developed his subject arbitrarily, and dealt only with one aspect of

psychology under circumstances which did not favour a sound treatment, Condillac was a force to be reckoned with for half a century.

§ 3. The residence of Condillac in Parma (1758–68) exerted an immediate and definite influence on academic thought in Italy. After the death of Galileo (1642) little was done to maintain that reputation in philosophy and psychology which Italy acquired in the fifteenth and sixteenth centuries. Vico stands almost alone during the first half of the seventeenth century, and his work belongs mainly to philosophy of history, though in many respects it may be regarded as a contribution to the psychology of races. Vico's method has points of affinity with Plato and with Macchiavelli, thus uniting in a new and independent manner the two fundamental currents of the fifteenth century. But though a later writer could recast Vico's philosophy of history as a sequence of the ages of sense, imagination and reason, Vico himself looked upon the whole development of man from a point of view that was consciously opposed to psychologism, an opposition which was carried out in his antagonism toward the Cartesian philosophy. For the rest, many insignificant works represented various Platonic and Aristotelian traditions, while Descartes, Malebranche and Leibniz found equally insignificant followers. Among writers earlier than 1750, F. M. Zanotti has been rescued from oblivion by Ferri as an able advocate of the Associationist doctrines, probably influenced by Hume. Zanotti was one of the earliest to favour the principles of the "Baconian Reform": he was also active in teaching the doctrines of Newton: and the title of his work, a fragment, was *Della forza Attrativa della idee* (Naples, 1750). This declares to all that the mind will be treated as analysable into "forces" and normally subject to the kind of associative union which men of that period delighted to honour.[1]

The countries of southern Europe, Spain and Italy, were depressed for a long time by religious and political quarrels. During the eighteenth century Italy recovered slowly from the state of confusion which had arisen when the new

[1] Ferri, L. See Bibliography.

doctrines were able to excite the imagination of every independent thinker, but the old were still able to live by the aid of social, political and religious subsidies. Philosophy, and with it psychology, came on the disputed border line. In the sciences of the body men like Borelli and Spallanzani could still keep the name of Italy before the eyes of Europe, but the mind and the soul were subjects that remained under the direction of pettifogging interests. While a formal spiritualism or a weak empiricism, that is to say diluted Platonism or Aristotelianism, were the standard types of doctrine in Italy, there had been comprehensive movements in England, France and Germany. At last a purely academic and didactic interest led to the introduction of new doctrines; Condillac took his teaching with him; Locke's *Essay* was imported by Pietro Verri (1803) and Francesco Soave (1810); while the works of Genovesi, Scarella and others show how definitely (though incompletely) the French point of view became established.

Condillac's influence was paramount with Gioja (1767–1829. Works 1818, 1822), who showed a strong tendency toward a purely empirical standpoint, but afterwards lost prominence as the Kantian and Hegelian systems claimed adherents. Galuppi (1770–1846) presented this phase of development in a doctrine essentially eclectic, but inclined to abandon the empirical for the spiritualistic view of conscious activity; with Romagnosi he shows the Biran-Kant tendency emerging. Antonio Rosmini (1797–1855) became famous for political, ecclesiastical and philosophical activities, but though his *Psicologia* (1836) was translated into English in 1884, it belongs to the era of forgotten disputes and is notable only for the kind of subtlety which the idealistic psychology exploited in the days that followed Hegel's ascendancy. Scholasticism and ontological theories predominated in Italian philosophy until a naturalistic strain was introduced by Giuseppe Ferrari who brought it to Italy from Paris, and a definite sensationalism by Bonavino (*alias* Ausoria Franchi), whose work *Del Sentimento* (1854) goes back to Condillac again. Franchi condemned Rosmini and his followers as mere scholastics. It is interesting to remember that Moleschott's "materialism" came from

Turin, and Italy was once more a country of scientific importance in 1860. Physiology flourished first; then came a reconstruction of philosophic principles and last a physiological psychology. To this development reference will be made later.

§ 4. To France and Italy must be added Switzerland, represented by Charles Bonnet of Geneva (1720–90). Bonnet was at first interested in natural science and is still remembered for his *Traité d'Insectologie* (1745), a work which ranks with that of Trembley (cp. p. 371) as a contribution to the study of micro-organisms. This application to work involving the continual use of the microscope ended in weakness of the eyes, and Bonnet applied himself to elaborating physiological, psychological and metaphysical works of a more general character. In 1755 he published (anonymously) the *Essai de Psychologie*: in 1760 appeared the *Essai Analytique sur les Facultés de l'Âme*, with a supplement (1762) entitled *Considerations sur les Corps Organisés*: after these works more general speculations contributed to spread Bonnet's fame, notably *Contemplation de la Nature* (1764) and *Palingénésie Philosophique* (1769).

Bonnet's psychology is contained principally in the *Essai Analytique sur les Facultés de l'Âme*. This work, published six years after Condillac's *Traité*, is in many respects similar to the earlier work. Bonnet is quite conscious of this and refers explicitly to the points of agreement and difference, with explicit assertion that there was no dependence (*Ess. An.*, 14). There is no reason to doubt the truth of this statement; Bonnet comes forward as one who agrees in the main with Condillac, but proposes to correct the errors of his predecessor (*Ess. An.*, 156). The corrections are of two kinds. In some cases they consist in giving supplementary physiological explanations; in others they arise from disagreement on the question of mental activity.

As regards the starting-point and form of development, there is an extraordinary similarity. Bonnet uses the idea of the statue, begins from the isolated sense of smell, and exhibits the development of the content of the mind as a progressive complexity. At this point Bonnet begins his

deeper view; he not only says, with Condillac, that the sensation causes a change in the soul, but adds an explanation of the process. Infinitely small particles set up a motion of the nerves, and the "neural fluid" (*fluide nerveux*) transmits the motion to the brain; the consequent agitation of the appropriate "fibres" produces the agitation of the soul.

This addition of physiology to psychology is typical of Bonnet's methods. He insists, in every case, on the insertion of some process of the "fibres" between the external stimulus and the subjective experience. When we come to "attention" we find Bonnet objecting to Condillac's views. As the object ceases to act on the organism, the movement of the "fibres" decreases; there arises in consequence a consciousness of change from better to worse, a desire to sustain the better condition, and therefrom attention. (*Ess. An.*, 47: "J'entends ici par l'attention cette reaction de l'ame sur les fibres que l'objet a mises en mouvement, par laquelle l'âme tend à conserver, à fortifier ou à prolonger ce mouvement.") Here Bonnet seems to take an independent position, and explains attention as a specific activity of the soul. But the activity is no more than an inclination to the greater pleasure, a mechanical process, no way superior to Condillac's idea of an "interest" in pleasure or pain. In the earlier work Bonnet had been more in favour of defining attention as a self-determining activity of the soul; perhaps his reading of Condillac made him change his attitude. The mechanical view, up to a certain point, was more in harmony with his ideas about animals.

Memory is explained by Bonnet with special elaboration of the physiological counterpart. The action of an object changes the original order of the particles composing the "fibres"; the new order constitutes a tendency to act a second time in the same way; this physical disposition or habit is the explanation of memory. Imagination, comparison and judgment are explained on the same principles: understanding is simply a higher degree of sensibility (*sensibilité plus relevée* [*Ess. An.*, 261]). The association of ideas is explained through the movement of "fibres," so that it can be produced by any cause which results in the movement

of different fibres at one time. This is noteworthy, because it involves giving up all explanations based on the original order and connection of impressions; it implies rather a law of (physical) totality, since the only reason for the association is that the fibres have "something in common."

Reminiscence requires some explanation which will make clear the *qualitative* distinction between that which is given for the first time and that which is repeated. For reminiscence is essentially having a presentation which is recognized as not being given for the first time. Bonnet solves this problem by saying that a motion of the fibres is different when repeated from what it is when first given; hence the two movements do not fuse, and this difference, when noticed, constitutes the mark of remembrance. The difference in question consists in the greater facility of the second movement, and therefore amounts to saying that memory is a habit of the "fibres." Similar empirical principles explain all the higher functions. Personality, the last and highest, is of two kinds; the inferior kind is equivalent to the recognition of the changes that take place in consciousness, a recognition ascribed by Bonnet to animals; this is "personality improperly so-called," while personality in the proper sense is reflection upon the processes constituting the inferior degree of personality.[1]

In estimating the work of Bonnet two points deserve particular attention. In his own mind Bonnet seems to have considered that he was defending the reality and activity of the soul. In fact, he made the brain and the physiological factors bear the whole burden of the work. Though he declined to be called a materialist, his interest in the animal organism gave his work a materialistic appearance. His empiricism is as thoroughgoing as Condillac's, but his outlook and method give him a different historical standing. He indicates the way of development for a new type of psychology, a distinctive physiological psychology. A passage in the *Analyse abrégée*, § xix., is often quoted as stating the doctrine of specific energies, and in another place Bonnet says, "chaque sens renferme donc

[1] Probably allied with the idea of different levels, perceptive and apperceptive, as taught by Leibniz.

probablement des fibres spécifiquement differentes." This seems to have been a speculative thought and in part a deduction from the hypothesis that all external differences are represented by differences in the physiological organ of thought. He declares "The Intelligence which could have read in the brain of Homer would have seen the *Iliad* represented by the varied play of a million fibres!"

CHAPTER III

THE BEGINNING OF GERMAN PSYCHOLOGY

§ 1. THE work of Leibniz was so brilliant and so full of inspiration that it has often seemed to be the spontaneous birth of German philosophy. "We speak with pride," says Dessoir, "of a German psychology: in the time of Leibniz there was for the first time an imperishable German culture." In a sense this is true, but the statements of Erdmann are more true. "German rationalism," he says, "owes much to Leibniz, but he is not its only parent; few of its representatives are to be regarded as merely continuing to work out what he had suggested. The great majority of them drew their inspiration from Englishmen and Frenchmen, almost as much as from Leibniz and Wolff." The movement, was, in fact cosmopolitan from the beginning; Leibniz himself was cosmopolitan in life, character and thought, and if as a matter of convenience we speak of a "German philosophy" in the eighteenth century, it is because the locality is more distinctive than the thought. What is true of the general philosophical systems is still more true of the psychological works. They succeed one another in a chain of expositions which show the continual assimilation of imported theories and a gradual movement from the overdeveloped supernaturalism of the seventeenth century to the hard naturalism of the late eighteenth century. Through this development in all its phases runs one consistent thread of connexion. Leibniz emphasized the spontaneity of the soul; for him the work of the mind was something more than a mere arranging, sorting and associating of the given; it was essentially productive, creative and freely active. From this point two questions arise. Apart from rhapsodies, to which Leibniz inspired

more than one writer, the strenuous thinkers wrestle with the definition of this activity and the obvious necessity of admitting that however much the activity is and remains an "inner" activity, there is an "outer" activity also to be considered, both as actual agency and as the source of raw material for all manner of apperceptions or synthetic activities. This complex of problems is frequently presented as a mere antithesis of Locke and Leibniz. That formula does justice to neither of these names, as the sequel will show, and therefore it is better to begin by avoiding the errors which might arise from the use of those names; though nothing is gained by obscuring the fact that as the struggle develops English empiricism becomes the archetype of one doctrine and the monadology forms the germ of the other.

Gottfried Wilhelm Leibniz was born in 1646 at Leipzig. The Thirty Years War was still raging; it terminated in 1648, and Germany was then at the lowest ebb of its prosperity and culture. The active life of Leibniz fell in an age of reviving aspirations; in 1700 the Berlin Academy began its existence and marked the formation of a definite centre of learning in Germany and the determination to rival the French Academy. Though German in its locality, the Academy was cosmopolitan in respect of its members, and the predominant influence was French. Paris was the real focus of Europe at this period, and it is not surprising that Leibniz should have chosen to live there during some of the best years of his life, though the beginning and the end were spent in Teutonic provinces. Descartes died in 1650, but his influence was still powerful; Arnauld, Hobbes, Spinoza and John Locke were contemporaries of Leibniz. Malebranche died one year before Leibniz; Newton lived for eleven years after him. In England the Royal Society was founded when Leibniz was beginning his college courses; five years later (1665) the *Journal des Savants* began to appear; in England, France, Holland and Denmark science was enjoying an age of prosperity and progress.

To reach this world of science and speculation Leibniz had to go beyond the borders of Germany. Within its limits war and theology were most in evidence. The national characteristic which Leibniz never stripped off was that

desire for peace which comes from long wars and that turning of the mind toward its own inner welfare which was the core of mysticism. Boehme died in 1624, but the genuine spirit of mysticism lived on in Spener till 1705, and with this temperate mysticism, the religion of the Pietists, Leibniz was well acquainted. His buoyant vitality did not yield to the more negative aspects of mysticism; against pantheism and absorption he maintains pluralism and individuality. The inwardness and the impenetrableness of every life are the two foundations on which Leibniz built.

The complexity of the training, the life and the character of Leibniz is an important fact for the understanding of the eighteenth century in Germany. The strong background of scholasticism, the early influence of Pietism, the brief period of German academic training, the long years of change and travel, the continuous union of study with business—all these factors made Leibniz an epitome of human experiences and a point of attachment for the theologian, the metaphysician and the social reformer alike. Unsystematic and often incomplete, his theories are full of tempting possibilities and overflow with the redundancy of the Italian Renaissance, to which he was in many ways closely allied. In psychology as in the other departments of knowledge it is to the general attitude that most attention must be paid if Leibniz is to be justly estimated; next to that come the isolated lines on which that attitude found expression. Among these the most important is the Law of Continuity.

Originally developed in the science of mathematics and in the study of quantity, this was transferred to the study of life. Its application to the problems of life and mind led to the idea of a continuous uninterrupted scale of Being, which at once involves the doctrine that these are degrees of mind. These degrees do not exist only in the sense that animals and men differ in the degree of intellect each possesses; there are infinite degrees of psychic reality. Again, if we pass beyond the apparent separateness of each living unity, we find a deeper principle of continuity: everything not only exists but it coexists, and its relations to other things are at once outer and inner. Confining ourselves to the

application of this metaphysic to psychology, we find it leads to the assertion that every unit, which the materialist would call an atom, is a centre of force, a living reality. Instead of an atomistic doctrine Leibniz propounds a theory that is only to be called individualistic. The idea of the soul gradually wins its way to the heart of the whole system; psychology becomes the clue to the universe, the microcosm reveals the secret of the macrocosm.

In this way Leibniz ultimately builds up a philosophy that is ruled by the idea of conscious forces ceaselessly active. From Aristotle he takes the idea of potency; from Plato he gets the idea of an indivisible spiritual essence. The two are combined in the new idea of the monad, which is a pure energy known and interpreted through our own self-consciousness.

The doctrine is novel because it is neither realism nor idealism, neither materialism nor spiritualism. Its affinities can only be indicated by calling it naturalism spiritualized. The ultimate elements are endowed with life and motion, and that involves some degree or potency of consciousness. The unconscious, what we call dead matter, is therefore only relatively unconscious; it has the least possible degree of consciousness. Organisms are composed of monads with varying degrees of consciousness; the nature of the monads determines the position of the organism in the scale of life. The rational human being takes the highest place (omitting the nature of God) and includes an infinite series of lower monads. This fact is the explanation of the degrees of consciousness in the experience of the individual. Clear consciousness is distinguished from more obscure states by the degree of intensity. The law of continuity is invoked to prove that a perception rises by degrees to the stage of actual realization. The lower degrees are *petites perceptions*; the actualization of these in consciousness is called apperception. This doctrine is the focus of all that Leibniz has to say about consciousness. Its significance requires more detailed consideration.

According to Leibniz every monad is impenetrable. It follows that nothing enters into or goes out of this metaphysical reality. Applying this principle to the problems

of sensation (for the psychology of Leibniz is throughout applied metaphysic), we arrive at the conclusion that there can be nothing but changes in the states of the monads; passivity and receptivity are thus eliminated, and in their place nothing is left but the power of representing, the fact of presentation. This is most clearly stated in the *Principes de la Nature et de la Grace*, §§ 1–4. "The perception is the inner state of the monad, representing the things outside" (§ 4): "the perceptions are representations of the composite in the simple" (§ 2). Each monad, we are repeatedly told, is a mirror of the universe. The metaphor is significant. From the earliest times sight was the sense which prompted the most important explanations of knowledge, and in the later periods from Alhazen to Berkeley it is the theory of vision which most effects the general theory of perception and reality. Leibniz, a mathematician and acquainted with optics, finds in the same sphere an expression of his intuitions. As a mirror receives rays of light and redirects them, as the image in the mirror is not an image which the mirror itself absorbs or assimilates, so the mind represents all things not by *receiving* them but purely by being in a *relation* to them. There can be little doubt that Leibniz intended to overthrow the doctrine of outer as opposed to inner senses; or that his famous declaration, "the intellect is innate to itself" was formulated to avoid the difficulties which arose from insisting that anything is carried over from object to subject when sensations occur. The "pre-established harmony" was in reality a name for nothing, a mere symbol of the inexplicable. The net result is the clear recognition that the elementary activities of the mind are conceivable only as its activities; that analysis only reaches down to those elementary activities; finally that no juggling with sensations can make them into "outer" existences.

Returning to the principle of continuity, we may consider the relation between the confused and the clear perceptions. There are four terms denoting two main divisions and two minor divisions. The condition of mere relatedness is called "obscure," and would be represented in the state of mind which did not even distinguish itself from its object.

Opposed to this is the "clear" condition where such a distinction is achieved either distinctly or indistinctly. The two other stages are the lower and higher degrees of awareness, for the perception may be "clear" but not distinct, or both clear and distinct. This scale is in effect a true genetic analysis, akin in spirit and method to the *itinerarium mentis* of the mystics; it is the journey of the soul to perfection. It is essentially an explanation of the intellectual life *a priori*, i.e., from the basis of its reasons and in reference to its form. It is not, properly speaking, a criticism of Locke; it is merely another and a different theory. It suffers obviously both from lack of means to supply the contents of experience and lack of knowledge about experience. The well-known examples of the murmur of the ocean which must contain the separate sound of each wave, and of the colours, e.g. green, which is a mixture of blue and yellow, are primarily examples of the errors into which great men can fall. For the assumption that the experience is composite because the ground or reason (not cause) for it is composite, must be regarded as unjustifiable. Leibniz (and Kant after him) was misled by the analogy of the microscope into thinking that an object could remain the same and yet progressively develop before the mind. The microscope reveals the infinite plurality in unity, the endless parts implicit in a whole; therefore (it was argued) intensive magnitude is equivalent to implicit distinctions, and attention or introspection makes those distinctions explicit. The fallacy here was the assumption that what is implicit in things must also be implicit in the consciousness of the things. Many things may be contained in (implicit in) a box, but the eye which sees the box does not see its contents; nor does the mind which thinks of yellow necessarily think of the green and blue "implicit" in it. This error in the use of the term implicit deserves careful notice. It not only serves to explain many later attempts to get out of concepts what was never in them, but it also led onward to a renewed belief in experiments on the mixing and fusing of mental elements.

Unity and activity are the two fundamental terms of the monadology, and their importance overshadows all

distinctions of faculties. The only kind of distinction which Leibniz does trouble himself to make is that which concerns the difference between having a state and moving into a state, the rest and the motion of the soul. What has been said about perceptions is a description of any simple act of "mirroring." If this were all we should have to admit that the state of perception was really a passive state and utterly dependent on the objects; for a picture in a mirror only changes in conformity with the motion of the reflected objects. But having explained that the content of the mind, its sum total of knowledge, is equivalent to the relations which it bears to its total environment (the cosmos), Leibniz proceeds to add a most significant factor. As merely knowing we reflect the known, but as living souls we are thereby affected, have feelings, struggle to maintain or reject, and so exhibit a "tendency to pass from one presentation to another." This is what is called will, and Leibniz proceeds to treat it in the manner of Aristotle and the Peripatetics of the Middle Ages. Will is described as fundamentally a striving after the Good. The Greeks had already distinguished three kinds of good things, those that are good in themselves, those that are good in themselves and for some ulterior end (as exercise which promotes health), and those that are good only as means (e.g. medicine). On this basis, with a reference also to Aristotle's treatment of deliberation, Leibniz distinguishes the primitive will for the good (*volonté antecedente primitive*), the secondary will for the evil which is combined with a good (*volonté moyenne*), and the will as act of choice which results from deliberation (*volonté finale*). The exposition of this doctrine in the *Theodicée* (§ 119) shows both the depth and the confusion of its principles. The confusion is due to the idea of an ultimate good, the optimistic bias characteristic of Leibniz; through this the conation of Hobbes and Spinoza is made into a transcendental will which may be legitimate in a *Theodicée* but is not psychology. The depth is attained by realizing that the will emerges from the sphere of *petites perceptions*, from the unnoticed and perhaps "unconscious" factors which in their totality make up the dark ground of the life of desires. This was the point

which made Leibniz the beginner of a new voluntarism. A brief anticipation of some later theories will show the meaning of this rather obscure point.

The rationalism of Leibniz is obvious; he follows the Cartesian path and makes the ideal of life a state of clearness in which the truth is seen and acted upon. But from that highest point of perfection hangs a long chain of other states, more or less unclear, but not less filled with activity. It was possible therefore to develop from Leibniz a doctrine of feeling of which the keynote was the power of unclear elements to produce unique states of mind. Art in general, and music in particular, was taken to be a sphere in which clearness was not even an ideal; its aim was purely stimulation of the total life of the soul by exciting and blending the subrational elements, the blind forces of the *petites perceptions*. Thus in one direction Leibniz promoted the movement which ends in giving a distinct position and value to the feelings, while at the same time it remained possible for Herbart to quote Leibniz as his forerunner in the theory that the Will springs out of the relations between presentations.

§ 2. In Leibniz the two great tendencies which had controlled mediæval thought were speciously united. Through his mathematical and theological tendencies Leibniz was hierarchic: his pietism and his close contact with the actual variety of human nature gave him in addition a strong leaning toward the opposite mode of thought, the spontaneous and individual self-expression of the mystics. Germany was open to all influences, being then in the first stage of a definite national consciousness which would afterwards appropriate and stamp as its own a particular type of thought. The endless possibilities contained in the monadology of Leibniz were in a favourable environment, and there is nothing strange about the way in which the different suggestions thrown out by Leibniz are given separate and independent expansion in the succeeding half of the century. Amid the confusion of the controversies and interests that fill up the period between Leibniz and Kant it is difficult to follow any single track or discover

any dominating line of thought, and it will be necessary to adopt the unsatisfactory but unavoidable principle of regarding those as most important whose works were actually most effective. Here as often the survival is the only mark of fitness which history can recognize.

Among the various lines of thought so carefully disentangled by Dessoir we may note particularly the following: First comes the actual systematized teaching of Christian Wolff, which has all the importance that belongs to such widespread educational machines as well as some independent value. Parallel with this runs a looser and more popular style of thinking which is either allied to religious doctrines or to practical interests of a worldly kind. Of these the former tends to promote a speculative view of the soul and consequently finds some affinity with the mystical side of monadism, while the latter degenerates into gossip and personalities, incidentally furnishing scope for acute observation. A subordinate form of religious psychology emerges as pure mysticism, becomes introspective and is united with the tendency to write descriptions of the inner life, both normal and abnormal. All these may be regarded as products of the national, though very cosmopolitan, life of the German towns; but two other lines of development are directly influenced from outside. Of these the first is connected with the Berlin Academy, which was from its foundation a mixed society of German, Swiss, domiciled French and alien French members, and shows a strong leaning toward a rather superficial humanism, a mixture of shrewd cynicism and a carefully concealed effort to be original, which subordinates methodical elaboration to style and smartness. The second is the influx of the analytic method of Locke, Condillac and Bonnet.

A disconcerting factor in the history of this development is due to the imperfect knowledge which the first Wolffian school had of the real position of Leibniz. The death of Locke prevented Leibniz from publishing the *Nouveaux Essais*,[1] and until they appeared there seemed to be no reason why the teaching of Locke and Leibniz should be regarded as irreconcilable. During the earlier years of

[1] First published by Raspe, 1765.

the century the intention of mediating between Locke and Leibniz is not apparent: the principles and the problems of the monadology are worked over and naturally generate certain difficulties which are then strongly accentuated by the increased knowledge of the way in which Leibniz proposed to correct Locke. The end of the century shows a fully conscious endeavour to achieve a reconciliation, but this is deeply affected by the fact that the first rationalizing movement after Leibniz has been counteracted by an empirical tendency, leaving for the last quarter of the century the problem of uniting the particular rationalism and the particular empiricism which had thus emerged. The philosophical leaders from Leibniz to Kant are thus grouped as rationalistic or empirical, the empiricism being produced in its cruder form by medical men or journalists and entering into philosophy as a rational empiricism. This also forms the main line of development for academic psychology.

A student of Leibniz who had never seen the criticism of Locke in the *Nouveaux Essais* would be impressed chiefly with the emphasis laid on the activity and the self-sufficiency of the soul. There would seem to be an affinity between the independence of the monad and the pure intuition of the Cartesian maxim, "Cogito, ergo sum." In order to develop the monadism of Leibniz into a complete philosophy it would be necessary to explain the nature of the monad in a way which would conform with the usual divisions of philosophy and, consequently, to evolve from Leibniz a formal psychology. This could most easily be done by interpreting the inner activity of the monad as pure self-consciousness. Granted the standing problem of interaction, that is to say the persistent tendency to regard consciousness as having no relations with the world of things which would explain the presence in it of ideas referred to that world, it was also natural to present this psychology as primarily the account which the soul gives of itself as the product of its reflections. Wolff, endowed with a genius for order and system, very conscious too of the ineffectual character of the Leibnitian exposition, performed the ungrateful task of constructing from the fragments of the master's teaching

a standard body of doctrine. For his basis he takes the *vis representativa*, the power of the mind to think its own thoughts. This, in some form or other, becomes the peculiar mark of German psychology, which remains afterwards the type of all psychology founded on the idea of activity. The importance of the point justifies a further expansion of its bearing on psychology.

The English psychologists in the main set out from the idea of the contents of the mind and explain the unity of consciousness by the natural affinities between these contents which are at various times described as associated, chemically united, or physiologically assimilated. All these are metaphors which ultimately explain nothing, but the point maintained without fail is the necessity of going from the plurality to the unity. Leibniz definitely set the unity first, and consequently left to others the task of showing how the plurality was possible. The honours were well divided, for if the former method never seems to attain any real unity, the latter never seems to show cause for any of the ordinary mental conditions which the common man takes to be the effect of sense-impressions. While Locke's terms might give offence by suggesting that the outer sense was separate from the inner power of reflection, Leibniz caused an equal amount of heartsearching through his union of outer and inner sense in one graduated scale of consciousness. What was " outer " for Locke was " inner " for Leibniz, and if the former could not get the sense material over into the mind, neither could the latter get it up into the higher plane. In the sequel we shall see how this question is settled : for the present it is enough to remark that the *vis representativa* has to do duty for both the subjective and the objective element in an act of consciousness.

The *vis representativa* is the real beginning of Wolff's psychology. This monumental work is still accorded honourable mention in the histories of philosophy, but it is presented as a deplorable instance of misapplied talent. A certain degree of injustice can be detected by anyone who values systematic thinking more than the invention of systems. The fervid genius of Leibniz achieved great

things in many departments of knowledge: Wolff was essentially an instructor and more inclined to judge the final outcome of the whole theory than to defend paradoxes. From the first he was no very strict disciple of Leibniz. He dismissed the monads, substituting for them the atoms of the natural philosophers. He also paid little attention to the pre-established harmony, thinking that the parallelism of physical and psychical states was all that could be established. The science of the mind, at any rate, has no real dependence on these prefatory rhapsodies, and Wolff deserves some credit for having declared the study of the mental powers to be the foundation of all philosophy. This, too, had been said by Leibniz, but it is repeated by Wolff in a more pertinent form. Leibniz was interested in what for the sake of distinction may be called pneumatology. Wolff realizes that this is not a real substitute for the current systems of psychology, any more than a mystical confession is a substitute for a catechism. His task as a teacher was the creation of a new catechism, and as such the outcome must be estimated. He begins with a distinction between rational and empirical psychology which is a distinction of methods. Rational psychology is the deductive part of the science in which the necessary elements can be proved apart from observation. For example, since the material is wholly distinct from the immaterial, the necessary conclusion is drawn that the changes which we observe in consciousness arise from the activity of the soul which always tends to pass from one presentation or state to another. The states of consciousness are therefore changes, each of which has its sufficient reason in a preceding state. This is formal enough, but it amounts to no more than an explicit statement of what was involved in the doctrine of Descartes and Leibniz: it leads to the adoption of a pure parallelism. The psychophysical parallelism taught by Wolff is elaborated with the help of the traditional Aristotelian scale of functions. The physical part of an experience consists in the operation of the organism and the production of an idea in the brain, a material idea. The psychic part begins with the activity of the latent power of the soul, which is the actual sensation and the

lowest degree of mental life. The powers of the mind are divided into lower and higher, the division coming as in Aristotle at the point of transition from involuntary to voluntary operations, that is to say in the distinction between retention and recollection, or between receptive and creative imagination.

At this point the significant feature of the Leibnizian influence begins to lend another character to the system of Wolff. Emphasis is laid on the spontaneity of psychic action: the products of this activity are not mere reproductions of the ideas united in the lower powers, but new creations: the poet and the painter have the power of creating new forms, and the work of genius is the full expression of this unique capacity. Here Wolff makes prominent the Platonic factor in the work of Leibniz and, somewhat unintentionally, mediates between the Platonism of the Renaissance and the Neoplatonism of Schelling or the æsthetic mood of Schiller. For the rest, only two points call for mention. The moderate attitude of Wolff allows him to recognize the value of physiology for the understanding of the human being, and his recognition of this part of the science of man prepares the way for the later views of the organism which ultimately took the place of the metaphysical "harmony." In opposition to this is the refusal to treat the passions as other than cognitive states: in the recognition of perfection lies the essence of pleasure, and this coincides with the attainment of the good which every creature strives to realize in its conscious life.

In conclusion the main points of Wolff's teaching may be stated briefly. He accepts the *apperceptio* of Leibniz. He builds up his system entirely from the elementary psychic facts called ideas or presentations. He defines sensation as *representatio compositi in simplici*, the representation of the complex physical object in the simple nature of the soul (e.g. the sensation of colour). He develops the law of mental reproduction as a law of redintegration; for when a present perception forms part of a past perception, the whole past perception tends to reinstate itself. To every process of the mind corresponds a modification of

the body, an *idea materialis*. As there are no gaps in nature, so in the mind there is no gap between the lowest and the highest operations.

Wolff as a psychologist was at the same time retrograde and progressive. His peculiar inability to grasp the spirit of the monadology accounted for his tendency to see in it only a variation of the Cartesian themes and to begin his own work from the dogmatic " Cogito, ergo sum." For him, too, psychology is a subdivision of metaphysics and not to be regarded as a natural science of the mind. Against this backsliding must be reckoned some important virtues. Wolff named and defined empirical psychology, though he made no significant contribution to it : he mediated between Cartesian spiritualism and the monadology by recognizing physiology as a complement to introspection and advocating a psychophysical parallelism which was sufficiently advanced to be dubbed materialism by his enemies. The extinction of Occasionalism was the most happy result of this sensible point of view. In all his work Wolff failed to be truly creative, but he classified, ordered and defined almost the whole body of existing philosophical sciences. No more systems were needed, and, as usual, the next movement consists chiefly of emendations along with the elaboration of departmental subjects.

Wolff regarded himself as agreeing with rather than following Leibniz. Born in 1679, and educated at Jena, he was like Leibniz in being the product of scholastic and Protestant influences. In 1703 Wolff was lecturing at Leipsic, and in 1706 he began his career at Halle as Professor of Mathematics ; in 1711 he began to teach philosophy, roused the enmity of the conservative theologians of Halle, and in 1723 was compelled to leave the place. In 1741 he returned, triumphant over his enemies, and remained there till his death in 1754. From 1709 to 1753 Wolff wrote continually on mathematics, physics, philosophy and theology ; the *Psychologia Empirica* came out in 1732, and was followed by the *Psychologia Rationalis* in 1734. During his lifetime this " Prince of Pedants " was by no means the only authority on the nature of man who disputed the supremacy of Leibniz. Christian Thomas (1655–1728) was an exponent of the ideas

and principles most directly opposed to those of Wolff. Though a philosopher by profession, Thomasius openly flouted system and accuracy. Partly mystical and wholly individualistic, he cultivated the study of law, which had recently been placed on a new foundation by Puffendorf. The theory of justice as then treated was a theory of the nature and duties of man, a theory that might vary from scholastic and theological dogmas to the purest positivism. Thomasius followed the lines marked out by Hobbes and Puffendorf, and with his views on the state he combined a high estimate of worldly wisdom, such as Francis Bacon and the French essayists had entertained. The consequent elaboration of such subjects as the will, the affections, and character formed an influential body of ideas which assisted for a time to stimulate interest in practical psychology. Another writer whose work shows a similar tendency toward concrete and individualistic studies of character was Georg Christoph Lichtenberg (1742–99). Both Thomasius and Lichtenberg failed to make more than a transitory impression: their equipment was inadequate and their lack of method only made easier the ultimate triumph of Wolff.

Yet this suppressed tendency was not entirely eliminated. Wolff's successors, when not merely imitators, began as early as 1740 to emphasize two points, the nature of feeling and the importance of a direct study of human nature. The former was the work first of Baumgarten, afterwards of Meier, Sulzer and others. Alexander Gottlieb Baumgarten (1714–62) is best known as one of the founders of modern æsthetics. While æsthetics in general is a theory of art and the nature of the beautiful, the special phase of it which concerns us here is that which Baumgarten first studied, namely the character of sensation. As here used the term æsthetic is to be taken as a direct equivalent of the Greek αἰσθητική; it is the science of the lower forms of knowledge, an expansion of Wolff's doctrine about the lower forms of cognition.

The real impulse to this movement came from Leibniz, especially from the description of perceptions as forces and from the definition of pleasure as the recognition of harmony. Somewhere latent in this doctrine was a distinction which

Baumgarten proceeded to make explicit. A sensation may either give us knowledge of an object or it may be the basis of an attitude or disposition; we may look at a flower in order to discover its genus or to enjoy its beauty. These are different attitudes, different forms of activity: they are so far different as to be opposed, for increase in knowledge and the effort to make distinctions can destroy the æsthetic mood which requires its object to be "clear," but not to be "distinct."

Baumgarten's pupil, who was also a professor at Halle, Georg Friedrich Meier (1718–77) carried on the work of his master. The style becomes a little more popular in its avoidance of the deeper problems, and there is a more distinct tendency toward making psychology the basis of the philosophical sciences, though it is still technically a branch of metaphysics. Meier's *Metaphysics* appeared in four volumes from 1755–9. Meier lectured on Locke's *Essay* and the influence of that work is seen in the increasing demand for facts and experiments, but Meier seemed unaware of the real difference between Locke and Leibniz; he distinguishes the outer sense (e.g. of blue) from the inner sense (e.g. of sadness), and retains the rationalistic view that sensations are less perfect forms of knowledge of our own states of reason.

§ 3. At this point the general character of the works published in Germany changes in a way that indicates a beginning of English and French influences. The sources of this influence are obscure, for the period of translation comes later, but it is legitimate to assume that the learned acquired knowledge of foreign writings before they were translated and the Berlin Academy furnished many possible channels, notably Voltaire, who brought Locke to France, and was himself resident in Berlin before he quarrelled with Frederick. Whatever may have been its source, this influence stimulated the empirical and practical tendencies already beginning to be active.

Ploucquet, whose main work, *Principia de Substantiis et Phenomenis*, appeared in 1753, asserts that psychology should be a natural science. He did not himself remove

it from the sphere of metaphysics, but he opened up a new line by rejecting the principles of monadism and giving sensations a definite place as a physical process; he denies that they arise from the soul ("ex solo interno animæ fundo"), though he maintains that we only know our own states—a position curiously analogous to Berkeley's.

A further divergence from the Leibniz-Wolffian tradition was made in 1755 by Casimir von Creuz, a lawyer who devoted his spare time and applied his common sense to the problems of life and mind. His *Essay on the Soul* (*Versuch ueber die Seele*) has been called the first purely psychological work in Germany; its significance consists in the very negative virtues of being opposed to both materialism and spiritualism, and laying much emphasis on experience as the sole basis of psychology. Von Creuz asserts the necessity of external agencies in the production of sensations, thus moving away from German rationalism toward English empiricism; he also regards the soul as having power to move the body, a view that further imperilled the high and dry rationalists. Somewhat uncertain of his ground, von Creuz decided that the soul should be described as a "middle thing." This otherwise insignificant definition became important for several reasons; it served as a general formula for those who were convinced that knowledge is partly sensuous (material) and partly supersensuous or conceptual (immaterial). This marks the new tendency to substitute for the metaphysics of the schools an analytical study of consciousness, afterwards developed through Mendelssohn to Kant's critical work.

While von Creuz the lawyer was examining the evidence for and against the current views, the physician J. G. Krueger championed the study of character and conduct, thus further shifting the emphasis from introspection to observation, and asserted more elaborately the dependence of the psychic upon the physical, without accepting any form of materialism. Krueger wrote, in 1746, *A New Theory of the Emotions* and (with other minor works) an Essay on the experimental doctrine of the soul (*Versuch einer Experimental-Seelenlehre*, 1756). To these scattered utterances must be added the more organized efforts of the Berlin Academy, to which

Frederick the Great gave at this time a new form and new vigour. Frederick regarded the speculative sciences purely as the quintessence of civilized life; he required all writing to be in French, as being at once the most intelligible and the most polished medium of expression; theology was debarred, and all favours were reserved for those who combined with real erudition the graces of elegance. Under this royal direction the life of man, his nature, disposition, happiness and future prospects (the science of immortality) were enthusiastically studied. The influence of Locke, Rousseau, and the French encyclopædists became predominant; materialism was not viewed with any antagonistic prejudice even in the form given it by Lamettrie. Among the more prominent men of the Academy, Maupertuis was interested in the disputes over "soul-atoms" and in the nature of language; Mérian, a Swiss, also made contributions to the study of the mind in the Memoirs of the Academy, of which the most important was on the nature of "obscure" ideas and of apperception. Mérian made the rather important statement that an obscure idea is in reality a clear idea accompanied by the feeling that other ideas are lacking and the effort to acquire the ideas felt to be wanted. Here we see a tendency toward the conversion of degrees of clearness into degrees of knowledge, and a movement from the study of qualitative differences in presentations to the quantitative differences depending on the range and number of acquired ideas. This was another way of uniting Leibniz to Locke.

More important than these was the other prominent Swiss member of the Academy, Georg Sulzer (1720–79). A man of many interests and occupations, Sulzer shone in a circle that included Maupertuis, Euler, and Spalding, the translator of Shaftesbury. Klopstock's *Messias* appeared in 1748, and took captive the young philosophers who were anxious to discover the secret of genius and the hidden virtue of artistic composition. The rich fervour of Shaftesbury's work was a welcome stimulant; the moral sense and the æsthetic sense became the focus of immediate interest. Elected to the Academy in 1750, Sulzer almost immediately wrote his essay on "the origin of appropriate

and inappropriate feelings." His views were, he claimed, based on six years of self-observation; there is no reason to suppose that Sulzer was inspired by Locke, for his results could easily be reached by developing the more attractive and practical views of Leibniz. The outcome is simply the establishment of the feelings as a distinct class of experiences. The proof rests on the distinction between the cognitive and æsthetic aspects of experience. The example used to illustrate this distinction is the precious stone which may be to one person an object of admiration, while to the jeweller it is primarily an object of cognition, a thing to be classified and estimated. All activities of the soul are reducible to two faculties or capacities, knowing and feeling. These faculties belong to a soul which is defined as simple, indivisible and distinct by nature from physical things, though Sulzer did not deny that psychic changes were affected by physical processes.

In this general tendency to pay greater attention to feeling Sulzer was supported by Moses Mendelssohn, a very influential writer in his own day. Mendelssohn's *Letters on Sensation* (*Briefe ueber die Empfindungen*, 1755) were a popular but effective plea for the feelings and a definite claim to give them an independent position between knowledge and desire. The "three faculty" doctrine, according to which all activities of the soul come under the heads knowing, feeling and willing, may be regarded as established by this work of Mendelssohn. The movement in this direction began with Baumgarten and ended as the product of interests mainly æsthetic (in the narrower sense which refers primarily to art), but also speculative and influenced by Leibniz, Locke and Shaftesbury.

The last forty years of the eighteenth century were a period of great literary activity in Germany. The so-called "pre-critical" period of Kant's development begins from 1755; as the century closes and many tentative movements begin to assume their correct proportions in the historical perspective, Kant's philosophy is seen towering above all other attempts at a reform of the current conceptions. Before considering Kant's relation to psychological theories we shall attempt to indicate the principal features of the

earlier movements, some of them being important in their bearing upon Kant and some no less important because they belong to lines of thought which survive through the Kantian period to later days.

The decade from 1770 to 1780 was the period during which material was lavishly supplied from older and alien sources. Locke was already known to some in a Latin version and Hume was the subject of annotations by Meier. In 1772 Hartley was translated, but his introduction to a wider circle was due to the versions which Hissmann published in his *Magazin* (1778). Abraham Tucker was translated in 1771. Berkeley's *Theory of Vision* was best known through Voltaire, who remained one of the most influential sources of knowledge about the English writers until increased interest in experimental and physiological treatises on the mind gave them a more independent position. Shaftesbury was beloved of all those who cultivated the new zeal for a theory of artistic creation; Hutcheson was cherished by the moralizing psychologists, Mandeville by the more "enlightened." After 1790 the Scotch school was largely relied upon to offset the growing sensationalism. Of the French school Malebranche was always at hand, though his metaphysical position had little influence, and his work was most appreciated when its wealth of observation was discovered by the experimental school. Condillac we find appearing in translation in 1750, preceded ten years earlier by Bonnet.

Without any more exhaustive discussion of influences it will be obvious that the German culture of this period was active enough to make demands upon all the best sources. Further witness to that activity is given by the great number of periodicals which began to appear, the two most important being that of Karl Philip Moritz (*Magazin zur Erfahrungsseelen-kunde*) and Hissmann's *Magazin*. Many other names are quoted by Dessoir, to whom the reader may be referred for information. The list serves to show the peculiarly rapid growth of interest in the more popular aspects of morals and psychology, a growth that seems to have been both abnormal and morbid. For with this partially scientific movement there progressed also another

which was merely individual and unregulated. This was the source of innumerable introspective records, diaries of the inner development of individuals, often interesting and capable of being instructive, but not of a kind destined to furnish any genuine psychological doctrines. Pietism was a force that made for self-examination and produced accounts of the inner life akin to mediæval mysticism. But the type varied widely. Haller kept a "day-book" of observations, and Lavater studied his own emotions and found some interesting facts, as e.g. the presence of an element of joy in terror and dismay, and a lack of real grief at the death of his mother. In Goethe self-observation reached the level where experience is the best form of experiment. The sentimental romance became the medium of self-expression, and the example set by Rousseau gradually became the basis of a new literature. So far as concerns the scientific value of this subjective analysis, neither the matter nor the method was new; those who recalled the confessions of St. Augustine were perfectly justified in regarding him as the patron saint of all those who were not more decidedly followers of Rousseau. This modern tendency toward purely secular "confessions" deserves to be studied critically; as the present work is historical, we shall pass over it without doing more than suggesting the strong connexion that exists between the confessions of the religious "enthusiast" and the self-revelations of the modern romantic writer anxious to unburden himself to an (imaginary) world of sympathetic listeners. In the other direction this attitude of mind leads to careful study of behaviour, and we get the analytic psychology of Tetens or the careful record of child-life, the first of its kind, produced by Tiedemann. Intermediate between the subjective cultivation of emotions and the introspective analysis of the mind came the attempts to arrive at a knowledge of abnormal states by the use of drugs. A few isolated attempts anticipate the character of De Quincey's *Confessions of an Opium Eater* (1821), but they do not attain the level of scientific investigations. They implied a growing belief in the close relation between mental changes and physical states, a belief which won increasing adherents during this

decade, 1770–80, and was due to the progress made by physiology and the rise of a distinct group of physiological psychologists, or, more correctly, of physiologists who took some account of the collateral psychological data.

As early as 1746 J. A. Unzer began a definite criticism of the current " pneumatology," demanding a more adequate consideration of the bodily processes. Unzer was a physiologist with a philosophical bent, a partial adherent of Stahl's doctrine, a copious writer and the founder of a periodical (*Der Arzt*) for the advance of psychophysiological doctrines. Through this periodical Unzer was able to give a wide publicity to many views which at that time were at least opposed to the official philosophy, if not intrinsically novel. Here we find the mechanical view of action used to explain the movements of animals and transferred to the movements of children, a revival of attempts to show the relation between emotions and changes in the temperature and circulation of the blood with other physical (though not materialistic) views on the nature of life.

The influence of medical training is evident in the views developed by Platner, Metzger and others. Ernst Platner (1744–1818), for many years Professor of Physiology in Leipzig, is best known for his *Philosophische Aphorismen*, though he was the author of several works on psychological and anthropological subjects. His views on the more abstruse problems were capricious; he was unable to make up his mind whether the *idea materialis* of Wolff was an actual brain-picture at which the mind looked when it attended, or merely an agitation of the fibres. Without deciding this point, Platner holds the idea of spiritual activity and develops the principles of associationism in close union with a synthetic activity. He recognized the associative union shown by a series of presentations, but also the degree of association which is implied by the structure of composite presentations. Under the influence of Leibniz, Platner maintains the presence of unconscious elements both in thought and in feeling, and therefore lays stress on the mixed character of thoughts, feelings and actions. Through Metzger and his pupil Nudow this complication of activity and passivity was developed; the hard lines of distinction

between the voluntary and involuntary processes were thus softened, and a more subtle view of the inner life as a mass of processes partly realized, partly prompted from the lower and more obscure levels, was tentatively advanced.

The combined advance of Lockian empiricism and physiological speculations produced among the philosophers a gradual alienation from the older pneumatology. A distinction was made between pneumatology and psychology. Metzger called his subject " Medizinisch-philosophische Anthropologie," and that array of terms shows significantly the points of view which at this time were coming to be regarded as the particular contents of psychology. The medical and the social interests acquired increasing force. The consequent tendency toward materialism was checked by the consciousness of ethical problems which were not likely to be solved by the unaided efforts of anatomists. The victories which physiology might win over theology were more than compensated by the losses which it suffered in each collision with romance and sentiment.

An important contribution to the literature of the seventies was made by Michael Hissmann (1752–84). His *Magazin für die Philosophie und ihre Geschichte* was used to extend the knowledge of such writers as Hartley; his *Geschichte der Lehre von der Assoziation der Ideen* was one of the earliest and best accounts of this phase of empiricism; his own original essays (*Psychologische Versuche*), though significantly called a contribution to logic, were a strong plea for more physiology and more anatomy. Hissmann drew attention to some neglected points, as for example the importance of the weight of the brain as indicating the volume of marrow, the relation between this and the age or development of animals and men, and the correlation between intellect and the cerebral convolutions. Not the brain alone but the whole nervous system is here regarded as the instrument of sensations; there is nothing to be gained by looking for a " seat of the soul," and the term " spirit " is a name for nothing. The operations of the mind are explained by Associationism; to the ordinary account is added the idea of an original connection between the physical

inner organs, which is held to account for the union between sensations and feelings; as, for example, the sensation of sounds in music and the accompanying moods.

The real centre of these ideas and the reason why they continue to be announced as logical ideas is the question of unity; the associationists intend to explain the unity of thought by the interconnexion and interrelation of all presentations whether arranged in groups (co-ordinated) or in series. This movement tends away from the doctrine of an original unifying agency and towards an empirically constructed unity; but it remains in a dubious position, uncertain whether the unity is a physical harmony of neural movements or a logical harmony of ideas. The trouble came more clearly to light in the work of Johann Christian Lossius (1743–1813), whose main work (1776) was an examination of the relations between mind and brain. This writer, a theologian by profession and a logician by taste, attempts to show the origin of truth from the primary sense-stimulation. From the stimulus comes the sensation, from the sensation the thought, and a contradiction in thought or inability to think things together is equivalent to opposed and therefore mutually destructive motions of the brain-fibres. In the treatment of the senses this line of thought led to some valuable suggestions, notably the idea that variety of tones in hearing implies a variety of fibres in the ear capable of giving fundamental tones and over-tones; but in dealing with the higher processes Lossius took refuge in a doctrine of images, at once material and spiritual, which amounts to an abandonment of physiological mechanism. K. F. von Irwing, in his *Erfahrungen und Untersuchungen ueber den Menschen* (1778), followed the same general principles as Lossius, but admitted more fully the distinct position of the higher processes. To Irwing was dedicated the first work of J. C. Hoffbauer, a professor at Halle, who also introduces his analysis of experience under the guise of Logic. Here we find an attempt to unite associationism with a doctrine of faculties, the association between activities being dependent upon the relations which the active principle (not merely experience in its outer relations) establishes as a connection of ideas. The root

of this attempt is to be found in the idea of a special faculty for combining and reproducing ideas, the faculty of images. J. G. E. Maass in 1792 wrote an essay on this faculty (*Versuch ueber die Einbildungskraft*) which elaborates (after Wolff) the idea that the soul has a power of unifying all the parts of a total experience, and then on occasion of "wakening" or raising to greater intensity one particular element of that totality.

The views of Maass were part of a general tendency to reject or modify the classical form of Associationism. This feature of his work has attracted attention in more recent times. The exact form taken by the doctrine is indicated by the following words: "Similar ideas cannot be associated unless, and so far as, either they or their marks form part of one total perception." Here the last phrase points away from association to "redintegration," and Bradley (*Logic*, II. 2, 1) quotes it with the remark that "the English votary of Association," if he had attended to the German doctrine, "might long ago have amended his theory." In fact, Sir William Hamilton did largely adopt this point of view, which was originally Wolff's, and made current that very word redintegration which Bradley uses again in this connexion.

Hamilton seems to have relied more on H. Schmidt (*Versuch einer Metaphysik der inneren Natur*), whom he quotes extensively.[1] Schmidt's main thesis was the activity of mind, obviously the doctrine of Leibniz carried out in detail. As translated by Hamilton,[2] Schmidt very clearly states the natural deductions to be made from the premises of Leibniz. Mental activity or the act of knowledge is "an energy of the self-active power of a subject one and indivisible." The nature of the memory is therefore automatically explained: forgetting is the fact which now calls for explanation. Schmidt says: "Every mental activity belongs to the one vital activity of mind in general: it is therefore indivisibly bound up with it, and can neither be torn from, nor abolished in it. But the mind is only capable at any one moment of exerting a certain quantity or degree

[1] See Lectures on Metaphysics, xxx. and *passim*.
[2] I have not seen the original of this.

of force. This quantity must therefore be divided among the different activities, so that each has only a part: and the sum of force belonging to all the several activities is equal to the quantity or degree of force belonging to the vital activity of mind in general." [1] From this is further deduced a relation of the activities of mind, such that a newly excited activity attracts the greatest amount of force and subtracts that amount from the earlier activities, which become feeble to "an indefinite tenuity" but never quite cease. Clearly readers of Schmidt would have nothing to learn from Herbart (or Lipps?) except more metaphysics and some dubious mathematical or physical analogies.

Lastly, mention should be made of the more independent and original work of Marcus Herz, a Jewish doctor in Berlin, who wrote an Essay on Taste (*Versuch ueber den Geschmack*, 1776) and an Essay on Vertigo (*Versuch ueber den Schwindel*, 1791). In this latter work, an excellent subject for a student of the relations between physical and psychical processes, Herz developed a philosophical treatment of the mental processes which is a good example of the state of psychology at that time. Materialism is rejected; the idea that vertigo is simply a disturbance of the "spirits" will not work. Spiritualism also is wrong in asserting the possibility of ideas abiding in the soul when there is no consciousness of them. A middle position must be found which is that of a permanent capacity or disposition to act; sensation is not a transferred impression but an inhibition, through external influences, of this activity. This point is obscure in detail, but in principle it implies that presentations are activities, and that these activities are modifications in which the soul reacts to outer conditions.

In place of that relation between ideas which was usually the theme of Associationists, Herz dwells upon the relation between activities. Every activity has a certain duration which is equivalent to the time required for a presentation to become clear, and this duration varies with the degree to which the soul has acquired the appropriate disposition and the amount of difference between the presentations.

[1] Abridged from Hamilton, Met. xxx., where the whole passage is translated from Schmidt.

While the so-called "laws of association" (similarity and contiguity) explain the character of some mental processes, they are not really fundamental, for they are only descriptions of the ways in which a disposition operates. To say that one idea is like another which it recalls is really to say that the mind has acquired a disposition such that one operation is more easily performed than another. A succession of ideas can only be grasped if time is allowed for each one to attain clearness; if the intervals are too long the connexion is lost, if they are too short the ideas are not adequately clear. In thought, as in sense, there is a rhythm which is regulated partly by the nature of the presentations, partly by the physical factors: as the soul is the same in all, individual differences must be due to the constitution of the brain.

The number and variety of the conflicting views which emerged during this period make the task of the historian difficult. The contributions of individual writers are isolated and minute, often noticeable only as reassertions of adopted views and often valuable only as indistinct anticipations. On the whole the dominant and persistent tendency is the recognition of activity which begins from Leibniz, and after being almost submerged by the wave of empiricism reappears as an assertion of the rights of form as against matter, and of the total life of the mind as against particular contents. In the last phase, of which examples have just been given, there has emerged a clear tendency toward asserting the following points: that associationism is only one aspect of a process which is ultimately the reconstruction of a total state of mind from a given part, the process called redintegration: that form is distinct from content and is seen in the variety of arrangement which different minds give to the same ideas; and, lastly, that a science of the mind must unite with the doctrine of its powers a consideration of the body as the condition of all their manifestations Though slow and painful, the process which led to a vision, however indistinct, of these necessary elements must be regarded as highly important. The eighteenth century was the real end of the mediæval period in the history of the sciences and of philosophy. As such it is the true foundation

of the nineteenth century. Before new ventures were undertaken there was an interval for surveying and criticizing the achievements of the earlier part of the century, and that interval was occupied by Tetens and Kant. The essays of Tetens may be regarded as the most important single contribution to the German literature of psychology after 1770, and the work which most deserves to be regarded as its final exposition.

§ 4. Johann Nicolas Tetens (1736–1807) was in 1760 a teacher of physics and metaphysics at Rostock, in north Germany, and later at Bützow, when the University was moved to that place. In 1776 he became Professor of Philosophy and Mathematics at Kiel. In 1789 he was given a position in the administrative offices at Copenhagen : he did not return to academic work, but rose to higher posts on account of his ability as financier and advocate of insurance. A contemporary of Bonnet and a keen student of his work, Tetens was not himself a physiologist : nor was he a mere philosopher. His chief work, *Philosophische Versuche ueber die menschliche Natur und ihre Entwickelung* (1777) showed a new and important combination of speculative power with keen observation. While Tetens had a firm belief in the value of what was at that time called the empirical method, he saw very clearly the fallacy of reducing psychology to terms of mechanics or physiology : he maintained firmly the doctrine that the true method for psychologists is the psychological method.

The nature of this method is left in no obscurity. Experience is the basis ; the modifications of the soul are to be accepted as they become known through inner experience ; they are to be repeatedly observed, with variations of circumstances ; their origin and the action of the forces which produce them are to be noted ; the observations are to be compared and resolved, so that the simple capacities, with their operations and interrelations may be sought out ; and these are the essential parts of a psychological analysis that rests on experience. This statement, reproduced almost verbally from the introduction to the *Versuche*, deserves to rank as the first clear statement of a purely psychological

method; it has the comprehensive outlook of a Baconian programme with all the advantages of direct relevancy; it accepts the whole spirit of science without confusing the notions of inner and outer reality.

The work of Tetens bears continual and direct relation to that of Bonnet; as Bonnet comments on and corrects Condillac, so Tetens treats Bonnet. In one respect these two exponents of science were united; they both declared that science is concerned only with phenomena. They both believed in an ultimate ground of unity called the soul, but they also believed that science reached no further than its appearances. Both reject materialism; both speak of soul and body as distinct data, though (unlike Bonnet) Tetens would accept a reduction of body to psychic elements in the manner of Leibniz. In any case, the hypothesis of interaction is accepted as the most probable; others are admitted to be possible, but this works best. It was in the valuation of the physical processes that Tetens parted from Bonnet; "My way," he says, "is the way of observation, while that of Bonnet was the way of hypothesis." In other words, while we can observe both our own experiences and the operations of the organism, the explanation of psychic events from the physical side is too insecure; the brain *might* explain the mind, if only we knew more about it, and if what we said about it were not so largely a repetition of psychological data in another terminology.

The study of the brain has advanced since the days of Tetens, but his main contention is still sound; feelings and thoughts are not really explained by calling them "movements of fibres"; we should in most cases never discover the function of these "fibres" if we had not begun from a given experience to find its possible physical correlate. While the help of physiology was neither rejected nor underrated by Tetens, it was regarded by him as limited and usually overestimated.

The attitude of the psychologist toward the data of physiology greatly affects his views on the subconscious. With the English school, Condillac and Bonnet opposed the notion; either there is consciousness or there is an inadequate physical agitation. Leibniz was in favour of subconscious

operations of the soul. This fact doubtless influenced Tetens; it was made more influential by his independent recognition of the obscurity underlying the idea of reaction. Physiologists incline to think that if the soul reacts to brain processes, it may derive its knowledge from or through those brain processes. But Tetens has two points to make in this connexion. Reaction is only possible where there is power of action, so that the brain does not create, but only condition, the soul's activity; it is still possible to ask whether this does not admit some activity of the soul over and above these reactions. Secondly, the essential element of feeling may be dependent on brain-effects, but there might also be modifications of the soul due to its own activity which did not achieve any brain-movement, and so failed to be reflected back into the soul. In this way Tetens keeps a place for the unconscious life of the soul, but he realizes more than his predecessors that we only know phenomena, and he is clear that the unconscious is properly a deduction from the idea of method, a metaphysical standpoint rather than a datum.

Tetens does not show any interest in the physiology of the senses; he abandons the objective method for introspection. Under sensations he groups the inner sensations of hunger, thirst, increased and decreased vitality, and in general all that was included in the *sensus interni* of Descartes. The subjective marks of sensation are—(*a*) reference to an object as present, which distinguishes it from a presentation or idea; (*b*) capacity to vary in intensity, extensity and duration; (*c*) an element of passivity. Sense is described as "relative," because it is not derived merely from the nature of the soul, but is conditioned by the state of the organs and by their relation to the objects. Finally it is reaction and therefore in some sense action, but consciousness itself testifies that the action is necessitated, and so far is passive. Driven at this point to say something about the physical conditions of sensation, Tetens agrees in the main with Bonnet; but he regards the whole question as irrelevant to psychology, belonging rather to a different sphere of science and not likely to give any deeper insight into the peculiar problems of the inner life.

The feelings are in part to be identified with sensations, namely as events in the organism. But the sensations have a quality of appropriateness (or its opposite) which constitutes their being felt. The feelings are therefore distinct from other phenomena in being presentations which are not conditioned by external objects (as sensations are) but by inner modifications. The nature of feelings is therefore best described by saying that they are distinguishable phenomena of consciousness which appear as the "feeling-side" of sensation. Tetens raises the fundamental question —Is the feeling only a phase of sensation, or is it a distinct experience capable of being later in time than the sensation.[1] Tetens decides that feeling is not capable of independent existence; it is by nature a parasite. But if he does not assert its separateness, he does maintain its distinctive character.

In addition to this question of the independence of feelings, there are other points to be settled. We may ask whether all conscious processes are accompanied by feeling, whether feelings are transferred, and whether they can be reproduced. On this first point Tetens decides (against Hartley and others) that feelings may be associated; that is to say, that a feeling may recall or reproduce another feeling without involving any other association (of ideas) to make its presence possible. But Tetens does not stop at this point; he goes further from Hartley and nearer to Bonnet in declaring that the soul has powers of spontaneous action, that the feelings accompanying the presentations of the inner sense are not merely reproduced, and that these feelings are more closely bound up with the accompanying ideas than would be the case in a mere association. Feelings, then, are not confined to the sphere of sensations; all consciousness has an element of feeling. Transference (or transferred association) is admitted. Also feelings may be reproduced, i.e. the idea of a feeling is itself accompanied by feeling; but the idea of a feeling tends to be weaker, though some

[1] Cp. Höffding, *Outlines of Psychology*, ch. vi. § 2: "I took a couple of steps backward and came in contact with a hot stove, which I had not imagined so close: I then felt quite distinctly the sensation of touch before the feeling of pain."

ideas tend to change into original images, as presentations may become hallucinations.

Sensation has a double function : it establishes a relation between the object and the mind, and produces in consequence a modification of the soul, the Leibnizian " presentation." These are described as after-effects, echoes, or traces of the original impression. These terms are not to be taken as indicating any actual portraiture of things in the mind ; presentations or " ideas " are not copies but elementary experiences, phases of the soul's life and activity. Tetens here shows the influence of Berkeley and of Hume ; we only know our own inner states, so that our immediate world is a world of experiences ; but some of these experiences (namely those which we recognize as sensuous) appear as impressions and as relative to external agencies. Reid's doctrine is expressly rejected ; that the presentation (or idea) refers to something beyond itself is a fact which only reflection makes clear, though, as a fact, it is implied from the beginning in the confused state of unreflective thought. In this way Tetens mediates between Locke and Leibniz.

The idea is for Tetens closely allied to the after-image. This remarkable opinion arose quite naturally from consideration of the nature of reaction. A sense-impression excites an inner activity which, so long as it remains a continuation of that excitement, is to be described as an " after-image " or residual sensation. As the original impression becomes more remote the image becomes an abiding presentation or mental content which operates in perception. Finally it recedes still further into the soul and only comes back in the reproductive activities. Somewhere in this series of transmutations we pass over from image to idea, from *idea materialis* to *idea intellectualis*. Tetens recognizes both ; in fever and delirium there is evidence that brain-changes cause reproduction of ideas ; but in normal thinking the reproduction is an activity of the soul, not primarily of the brain. Perception, reproduction and imagination are all distinct, but not as " faculties " : they are modes of the fundamental power of presenting ideas (having presentations).

Memory is a power of reproduction which belongs both

to the soul and to the physical organism or brain. Four hypotheses are possible: (*a*) The traces of former experiences might be in the brain alone. This was Bonnet's position, but it offers nothing more than a translation of psychic experiences into unproved physical hypotheses. Loss of memory, e.g., may be due to destruction of fibres, but it might equally well be due to purely psychic failure; restoration of memory after an illness is not really explained by the renewed vigour of the fibres, for not only the fibres but also the particular "traces" must be restored; to assume this is to assume everything. (*b*) The traces might belong to soul and brain alike. (*c*) They might be merely modifications of the soul. (*d*) Some might belong to the brain, others to the soul.

This last hypothesis Tetens would accept. At the same time he regards this question of the "seat of memory" as illegitimate; the processes are phenomena, the memory as such is not a phenomenon, and since scientific analysis is limited to phenomena, no demonstrable answer to such a question is to be expected. We can only take the least impossible hypothesis. So with association; the fact of association is obvious, but its basis lies outside experience. Association by similarity and by contiguity in time are the two types named; beyond that statement Tetens has only criticisms to offer. He feels that the theory has been overworked; the only real fact is that any idea may recall any other, and some are recalled more easily than others. Behind this general antagonism to the questions of association lies the belief in the soul's activity; it was as a passive linking of ideas that Tetens received the "associationist" view; he argues that imagination overrides its laws, that a series of ideas can be revived in a reversed order, i.e. in the order in which it was *not* given; also that links in a chain of ideas may be dropped out, without destroying the possibility of reproduction. All these are just observations, but they do not actually achieve much more than a reformation in the idea of "association." Tetens affirms the need of action; but after all, associationism was chiefly concerned with the nature, not the fact, of that activity. From his own position Tetens could be more

venturous in treating the creative imagination ; the material for this is drawn from earlier experiences, but the form of the result is wholly derived from the psychic activity. This conception of a matter and a form, corresponding to data and products of the inner activity, was a large factor in the work of Tetens. It came ultimately to be the core of his doctrine ; associationism, he felt, left the data to arrange themselves and their relations ; his view, on the contrary, made the data only a part of the content of consciousness and associationism only a partial explanation of the whole mass of psychic processes. Here we find the most significant part of Teten's work—the doctrine of creative imagination (*Dichtkraft*), a point not fully developed, but a real independent attitude capable of evolution. More will be heard of it when we come to Kant.

Form and matter, activity and passivity, come to be the leading terms of this doctrine. Sensation and feeling are (relatively) passive ; after-images and ideas are activities, judgment and reasoning still more so. The simplest element of thought is the discrimination of one percept from another, not a comparison of them but a pure recognition of differences as actually presented. Out of this recognition of difference (or mere plurality) arises reflection ; the earlier product is the raw stuff of this later and higher process. This " matter " of thought is not a feeling or a sensation ; there is no way from sensation to thought such as was meant by Condillac's definition of *sensation transformée*. Tetens' affiliation to the school of Leibniz is shown by his preference for the term apperception. What he wishes particularly to avoid is the notion that thought arises out of the mere coexistence of data ; he refuses to admit that the feeling which arises out of a similarity or difference in objects is the same thing as the recognition of that similarity or difference. Yet Tetens is too keen a thinker to assert that the recognition of relations is an act which creates them ; and a very awkward dilemma results. Either the mind creates the distinctions or the distinctions are first made and then recognized ; in other words, either the images are apperceived and so made distinct or by becoming distinct they reach the stage of apperception. In attempting to

get away from the Leibniz-Wolff position that images are obscure and only ideas are clear, Tetens has brought upon himself the whole problem of attention and activity. On this he has nothing new to say, and contents himself with protesting against the idea that attention is an act of will directed upon a given (passive) content; a view discovered by Germans in Abraham Tucker.

Next to apprehension comes the act of relating. Relations exist between objects, as was generally recognized; for Tetens they exist also between impressions—a point not unlike Hume's doctrine but distinguished from it by the emphasis which Tetens always lays on activity. Hume spoke of the relations we feel, Tetens of those we create. The list of the relations, taken from Leibniz (*Nouveaux Essais*), comprised (*a*) relations of comparison (Identity, Diversity), (*b*) relations of coexistence (Inherence, Time, Space), to which is added causality or dependence. These are the modes of thought; all thinking is judgment, and therefore these are forms of judgment, the categories. Tetens has obviously left the list incomplete, or rather he leaves a gap between these categories of relation and the categories of substance, unity, and reality which seem to transcend the system of relations. There is also some uncertainty whether the relations are established and then made explicit for thought by reflection, or depend entirely on thought. It seems as though Tetens was willing to admit a felt relation in such cases as musical harmony, but in the sphere of thought had not made clear to himself the difference between the relations of ideas one to another and the ideas of relation. Similarly Tetens shares with his contemporaries the tendency to confuse logical relation with psychological connexion.

Thinking and Willing are two cognate activities; the former reproduces previous modifications, the latter produces new ones. We do not directly feel the activity of Will; what is given to consciousness is the residual effect. The act of will pre-supposes the idea of the completed action; we can only will movements by fixing an idea of such a movement as it was previously observed in our own involuntary action. The basis for developed action is therefore

the preceding instinctive operation. Will therefore belongs to the higher plane of reflective action; Leibniz had not observed this when he reduced action to the mere idea of the object of volition; for on that basis instinctive action could not be explained. In every action mind and body co-operate; the idea is united with the feeling, the feeling is a conation that has immediate relation to the actual motor processes in nerve and muscle; movement is not a mere act of will, nor is it a mechanical process in which conscious activity has no share.[1]

§ 5. Dieterich Tiedemann (1748–1803) was one of the academic teachers and writers who contributed a number of essays to the general psychological literature of this age. The general results were summed up in his *Untersuchungen ueber den Menschen*; the first two volumes of the work were published in 1777 and were in that year superseded by Tetens's *Philosophische Versuche*. The *Handbuch*, which formulated the material of Tiedemann's lectures, was published after his death (1804). As a whole, Tiedemann's work is eclectic and empirical, combining Haller's physiology with Bonnet's "fibre-psychology" and adding to both a theory of the soul which partially abandons Wolff and partially adopts Locke. More than usual attention is given to the senses (after Tetens), and their characteristics are named under the heads of extension, intension, protension and succession: extension is a mark of sensation because it contains a plurality of elements, intension because it must have a definite strength, protension because its

[1] The account here given of Teten's *Versuche* may appear, to those who have been trained in modern psychology, lacking in systematic arrangement. It is necessary, therefore, to explain that Tetens comprehends the physiological parts of the subject under his conception of "Entwickelung," and to them he devotes most of the second volume. He relies largely on Unzer, and clearly regards the subject as a matter of correlation: the whole question of physical development runs parallel with that of mental development, from birth to death: embryology, physiology, evolution and epigenesis are here discussed as relevant topics, but always with the proviso that it is a matter of analogy (the relations within the material series being equivalent to the relations within the other series). The details of this lengthy discussion involve continual references to Bonnet, Haller, F. A. Wolf and other scientific writers of the period. It is not possible at this point to do more than record that fact.

duration is not reducible to a single point of time, succession because the duration is not long and a sensation quickly loses its strength. The basis of this analysis is the idea that a sensation is a modification of the continuous life of the soul and must be treated as a reaction. For the rest, Tiedemann's expositions have no independent significance, often fall behind the advances made in his own lifetime, and are only noteworthy for their range and the industry which they prove. The empirical tendency was strong in Tiedemann, and he deserves credit for the attention he paid to the problems raised by madness, intoxication, dreams and genius. While Kant and Fichte were leading the majority of teachers into the paths of dialectic and corrupting many with the obsession of mere dialectics, Tiedemann busied himself with the genetic aspect of the mind and took a scientific interest in animals and children. His *Beobachtungen ueber die Entwickelung der Seelenfähigkeiten bei Kinder* (an essay in the Hessische Beiträge, 1786) was a new departure that won for its author a wide reputation. It was translated for the *Journal général de l'Instruction* in 1863, quoted by Perez in his book *Thierri Tiedemann et la science de l'enfant* (1881), and translated into English in 1897 with the title *Record of an Infant's Life.* A new edition was produced in the same year in Germany, so that Tiedemann is to be counted among the very few eclectics of the eighteenth century who still live.

§ 6. The work of Kant belongs, in respect of time, to the last quarter of the eighteenth century; in significance and effect it belongs to the nineteenth century and the twentieth. The different writings mark the various crises of Kant's life and, for the historian of ideas, his biography is identical with the record of his literary productions. These fall into three groups, conveniently classified as the pre-critical, the early critical and the later fully critical group. The pre-critical period is dominated by the rationalism of Wolff; the second period is marked by greater attention to the analytic work of the English Empirical School; the third period shows a synthesis of the doctrines of Locke and Leibniz, which then passes into the definite philosophy

of Kant. When we come by this way to Kant's final position we inevitably pass out of the sphere of psychology into that of epistemology and it becomes necessary to consider, as a separate topic the effect which Kant's philosophy has upon the concept of psychology as a science. To avoid confusion these subjects will be treated separately; after the statement of Kant's psychological doctrines we may return to consider the relation of Kant's conception of knowledge to the departmental science of psychology.

The most important feature of the Wolffian psychology, as a whole, is its doctrine that all psychic phenomena are degrees of reason. This doctrine, called dogmatic intellectualism, leads to the assertion that sensations are confused ideas; between sensation and understanding (or reason) there is only a difference of degree, and the whole scale of mental activities can be regarded as consisting of degrees of reason. In a word, sensation is to be regarded as confused or obscure understanding; reason is distinct or clear understanding. The language and the thought of this dogmatic intellectualism are reproduced by Kant in his earliest work: he thinks of the soul as a mirror of the universe, includes in its content the latent or unconscious perceptions, and regards the emergence of ideas out of sensations as a progress from confusion to clearness. Platonism, mediated by Leibniz and Wolff, is therefore the first tendency of his thought.

Though Kant rarely refers to the works of others, he was continually engaged in the study both of ancient and modern writers: when he does mention a name it signifies that he has found a distinctive contribution to his own progress. After the first pre-occupation with Leibniz and Wolff, it is in Hume, Hutcheson and Locke that his interest finds satisfaction. The famous reference to Hume indicates that the reaction began from the study of that philosopher's trenchant criticisms. But this was no more than a beginning, for Kant was at once driven back toward the position of Locke, and it is from Locke that he really makes a fresh departure. In 1762 Kant expresses the opinion that an animal may have clear and distinct ideas without necessarily attaining to reason; there is a fundamental difference between distinguishing things from one another and knowing

the distinction between things. If this difference is established, it follows that we can detect qualitative differences in the contents of our mind, and we are compelled to separate the natural or physical process which results in a distinct image from the other logical activity which leads to the inner recognition of the distinction itself. Here we see the steps by which Kant returns to a position that involves the separation of sensation from reflection; we expect an immediate recrudescence of Locke's thought and terminology. Kant moved slowly. There was no impetuous rush into premature attempts at a system of thought. The situation was surveyed from various points of view, and the next most significant step was taken in his consideration of Swedenborg's works. The *Dreams of a Ghostseer* is an essay on limitations. If there are spiritual beings, beyond the range of common experience, there can be no reason for refusing to accept the statements of privileged persons about the actions and the mode of life of those beings. But then, where shall we stop? Kant saw that this was a test case: his mind begins from that point to dwell consistently on the question, Where shall we stop? The result was the critical philosophy—an elaborate statement of where one ought to stop. For Kant does not content himself with the question of the supernatural; he sees that it is not essentially different from the question of the super-rational, and if we include both these in the vague term super-sensuous, it will be necessary to examine the whole question of the relation between sense, reason and reality.

The first result was a change in the idea of sensation, quickly followed by a modification of the opposition between sense and reason. The intellect is now regarded as the faculty which makes explicit that which forms the content of our sensuous life. Sense and reason are therefore mutually limited: there cannot be objects for sense which are never given in experience, nor objects of the understanding which have no relation to the senses. This correlation gives Kant a critical attitude, which we see applied by him to the idea of the soul. This is a typical example of the way in which an idea may be converted into a thing. Rational psychology was founded on the idea of the soul as an entity;

in other words, as a possible object of a sensuous experience. Kant rejects this, and by so doing frees himself from the whole Platonic tradition. Descartes had never seriously challenged the idea of the soul; nor had Locke. Changes of method had never reached the point at which the question of any possible relation between a soul and a world of objects would be debated. Kant saw that it was not possible to speak of a soul which entered into relation with a system of pre-existing things. That consciousness which Descartes put in the forefront of his speculations is not for Kant a function of the soul; on the contrary, the new attitude is clearly defined by the assertion that the soul, in this sense, is in the consciousness, it is an idea. Hume had perhaps taught Kant that reflection is never actually a withdrawing of the soul into itself, nor is it a power by which the soul observes itself. As Hume confessed that when he entered into himself he found only the existing idea and not a permanent total self, so Kant admits the conclusion that experience is made up of experiences, that the idea of the soul is equivalent either to the substratum or to the totality of experience, and that it can for that very reason never be given in any single experience.

Here, then, is the real beginning of "psychology without a soul." In distinction from many who have used that phrase, Kant did not propose to deny the reality of the soul in the same way in which it had been asserted; his treatment of Rational Psychology is not dogmatic but critical. The first result was a clearer conception of the limits of psychology; in place of the previous inaccurate use of terms we are given clear distinctions. The science of the soul is called Pneumatology: the study of man as part of nature is called Anthropology; under Anthropology in general comes the specific department called Psychology. Since the critical philosophy teaches us that we only know phenomena, psychology as a science will be concerned with the phenomena or outward manifestations of the ultimate self. "Psychology, as distinct from theory of knowledge, must accordingly be sought in Kant's work on anthropology (*Anthropologie in pragmatischen Hinsicht*, 1798). The title itself proclaims that psychology is now to be regarded as

an empirical or pragmatic discipline only : since its particular sphere is that of inner phenomena, it may be called a natural history or description of the inner sense.

The scheme of the *Anthropologie* is adapted to the three-fold division worked out in the *Critique of Judgment*, namely, knowing, feeling and willing. These terms denote the least possible number of classes to which the phenomena can be reduced. If we speak of these as faculties, it is necessary to remember that they are such only as being unitary groups, not because each term stands for a distinct agency. In the sphere of knowing Kant distinguishes sense and understanding, the passive and the active aspects of that process. Kant diverges here into a defence of the senses which serves to warn us against under-valuing their importance or regarding them as an inferior degree of reason (§ 8–10) : they are like the people in a state who are under the ruler in the sense that they place themselves at his disposal, but not in any other sense " inferior "—a reminiscence from Plato. The sphere of sense includes imagination, or the power of envisaging sensuous images ; and intuition, or direct presentation. The senses are also to be distinguished as outer and inner. The outer sense includes the affections due to those stimuli which affect the organs of sense and also those which arise from states of the body, the " vital sensations " of heat and cold. The addition of the latter draws our attention to the fact that Kant is carefully avoiding any expressions that would imply the action of outer objects on the soul. The older view, which always speaks as though things lying beyond the surface of the body produced effects inside that surface, is assumed to be made impossible by the work of the critical philosophy. We must no longer use the terms outer and inner as though they meant outside and inside the skin. The new point of view deals only with the distinct character of the different contents of consciousness ; everything is really " inner " in one sense, but there remains a pragmatic difference, a distinction in the significance of those contents according as they imply objective or subjective reference.

That which is technically called the inner sense is limited to the perception of time. While the outer sense has many

immanent differences (sight, hearing, touch, taste, smell) and involves the form of space, the inner sense is the mere consciousness of a time-order. As actually known the inner and outer sense always coalesce, so that time and space are the forms of all sense-experience; but Kant certainly regards the inner sense as in some way more fundamental. Incidentally it may be noted that neither space nor time is regarded as a product of experience; logically they are pre-suppositions and psychologically they are incapable of genetic explanation. This view of space is known as the nativistic doctrine and is open to dispute; the question as to time is not regarded as equally disputable.

Imagination is either productive or reproductive. In either case it consists in the power of presenting objects for intuition when they are not actually given, an activity without a stimulus. This activity may either anticipate experience or follow it. In the former case, which is that of productive imagination, the pure intuitions of space and time are brought into play and enter into the experience as it were from our side, i.e. as purely subjective elements. This, needless to say, is an obscure point in the Kantian exposition. In the latter case imagination has the complete experience for its material: its work is seen in the power of the artist to form a mental picture of the object which he intends to create; it operates also in the association of one idea with another upon which depend memory and prevision; finally it is the condition of those forms of association which lead to abstraction, classification and analogical reasoning.

The second book of the *Anthropologie* discusses the feelings. These are regarded as distinct; they are not merely abnormal conditions of the intellect or in any other way to be reckoned as part of the life of the intellect. None the less, they inhibit the intellectual powers, and so far Kant can agree with the Stoics in regarding them as undesirable. The principle of "apathy" is expressly cited with approval. But while pain and pleasure are thus regarded as obstructing pure reason, the understanding can unite the idea of them to the ideas of good and evil, and so produce a quickening of the will. But, though useful, these feelings

remain distinctively pathological and distinct from the feelings called æsthetic. Kant seems to have been uncertain whether these two kinds, the pathological and the æsthetic, were really species of one genus, but in the *Anthropologie* they appear as such.

The closing sections on will, character, disposition and temperament have no claim to be regarded as novel or important. In fact, the degree to which Kant was steeped in the thought of the eighteenth century is nowhere more obvious than here. This can be said with no disparagement. The statement implies that Kant took more interest than is usually recognized in the daily routine of individual thoughts and feelings; that he was not ignorant of the spreading interest in man as a social animal; and that these lectures, delivered for so many years, may really have contained what Kant himself regarded as the indispensable groundwork of a constructive philosophy.

Kant's psychology, when thus picked out and presented separately, is seen at once to be decidedly meagre. But what it lacks in quantity is compensated by abundant suggestiveness and an almost unlimited power of generating problems. The meagreness is due largely to the fact that Kant takes psychology to be of little value; it is for him wholly empirical, and consists of an elementary doctrine of faculties amplified by the inclusion of such descriptive matter as might have been culled from novels or improving stories. Kant, who would quote no one as the source of his critical doctrine, frequently refers us to Fielding for his psychology! This is significant for two reasons: it shows how Kant limited his psychology to pragmatic anthropology, and it also incidently heralds the coming of a new psychology which shall be a science of behaviour. For Kant is a mediator: he considers that the pure intellect of the rationalists and the pure matter of their opponents are equally ridiculous; sensationalism is right, provided that it is the right kind of sensationalism—provided, that is to say, that it is critical.

The stimulation which Kant has supplied perennially for a century to innumerable writers must be held accountable for many discussions of his "psychology." We halt instinctively at the "Kantian era"; we feel that a man who

said so much ought to have said something on this great subject. Yet the fact remains that in reality he said nothing, and we reluctantly pass on. But if we now pass on we must change our direction. Again and again men have arisen who were not, properly speaking, psychologists, but were none the less factors in the history of psychology. Theologians, mathematicians and doctors have all in their turn impinged upon the moving body of psychology and redirected its course. With Kant it was not discovery but criticism that gave a new direction, and in view of much that has been said it is necessary to define at this point the exact estimate of Kant which will be carried over into the last part of this history.

When it was stated above that Kant had nothing to say on psychology, the term was used with strict reference to the last years of the eighteenth century. At that time there existed two distinct points of view, one a formal treatment of the soul, the other a disorderly curiosity engaged in collecting the materials for an uncreated science. Kant's critical work was destructive of the former because it made impossible the deduction of the facts of consciousness from an arbitrary definition of the soul. The latter Kant supported by his *Anthropologie*, for he was not devoid of sympathy with inductive methods, and preserved to his death a keen interest in phenomena which readers who never look beyond the *Critiques* do not appreciate. But this anthropology Kant declared could never be a science. The reason for that statement was Kant's conviction that mathematics was the one and only type of true science. Granted that position, Kant's judgment remains true. It is frequently stated that Kant condemned psychology because it could not be made a science, and that Herbart did what Kant declared impossible, while Fechner's use of mathematics destroyed the last remnant of Kant's objections. The statement has no relevance. On the contrary Kant has been justified by the increasing recognition that mental phenomena are, as he said, in " the flux of time," and therefore inherently incapable of being brought under the laws of a timeless (mathematical) order of reality.

Kant's constructive works, including a *Rational Psychology*,

were never written, and we are left with nothing but the preparatory criticism. The measure of his success and failure seems most adequately indicated by stating that his recognition of the variety of human experience was never brought under any such regulative principles as might be furnished by evolutionary and biological standpoints. Between the mathematics of the seventeenth century and the biology of the nineteenth there was an interregnum. Kant as a philosopher supplied new matter for thought by the invention of epistemology, but in many fundamental points he seems to be looking vainly for what had not yet appeared. Between the dogmas he could not support, and the deeper appreciation of phenomena which he could not reach, Kant remained motionless. Yet the negative attitude had its positive effect. Later generations looked back to Kant as a deliverer and acknowledged in him the beginning of two great ideas. Of these the emphasis on the practical reason and on belief may be regarded as the reaction of pietism against intellectualism, while the assertion of a synthetic activity as the central feature of consciousness was the preservation of what was best in Leibniz. The significance of these two points must be fully grasped.

(*a*) *The Practical Reason.*—In the *Anthropologie* and elsewhere Kant dealt with the objective aspect of conduct, the social order, law and custom. As objects of various sciences these are phenomena ; one phase of society succeeds another and the student arranges their sequence in the hope of extracting a law of their coming and going. If such a law could be formulated life could be reduced to a mathematical formula. But the actions which make history, though they can be taken in abstraction, are not abstract ; they have their source in the living reality of the individuals. Kant therefore excluded the sphere of rational action from the domain of science as he understood it, that is to say from the domain of necessity. The metaphysics of freedom do not concern us here ; the point of interest is that by this declaration Kant gave new life to the belief in personality, in that totality of the individual self which is called character and consequently for psychology recreated the standpoint of voluntarism which was in danger of succumbing to the

mechanical type of analysis. In theory as well as in the significant use of the term Gemüth,[1] Kant here revived the outlook and temper of the mystics (e.g. Eckhart).

For those who had grown up in the atmosphere of dogmatic religious teaching Kant's writings were novel and inspiring; the psychological treatment of religion in modern times goes back to Kant through Schleiermacher. But on the lower plane of morals there is less to applaud; in separating ethics from psychology Kant committed the error of exploiting "pure" forms where no such purity exists. It may be very true that emotions are "pathological," but the point at issue is whether conduct is ever exhibited by an agent devoid of such emotions. This we must deny and face the paradox of Kant's work, which is the fact that he humanized religion and hypostasized ethics.

(*b*) *Theoretical Reason.*—A similar defect mars Kant's treatment of the theoretical reason. The root of evil in both cases is the tendency to treat the capacities of men as though there was some disembodied "consciousness in general" about which the philosopher could make statements eternally and immutably true. The defect is less apparent here because Kant breaks new ground by attacking the problem of knowledge separately. This is what is meant when Kant is said to have invented epistemology. As a study of the structure of thought this science brought to light many valuable points, first and foremost being the idea that knowledge is not the product of ideas that arise out of experience and then systematize themselves in accordance with sundry affinities called "laws of association." On the contrary, Kant rightly declared that the mind must be regarded as a structure regulated by principles which are ultimately its own activities. Before Kant's time the psychologist was not unlike a physiologist who tried to explain digestion, without any reference to the organism, as a process by which various foods introduced into the stomach analysed themselves and distributed themselves conscientiously to their appropriate places in the organism. It was Kant who first saw clearly that such a procedure was wrong and that we must start from the mind to explain

[1] Cp. p. 125.

the ideas, not from ideas to explain the mind. Psychologists have, in most cases, recognized this merit in Kant, and all the modern work founded on the conception of the unity of consciousness is indebted to Kant. But for the rest Kant belongs to the logicians rather than the psychologists, and his theory is more important for discussions of validity than for the study of the mental structure.

The most difficult question to be answered is whether the Kantian Critiques are really based on psychology or on some other principles of analysis. The problem will be met again when we discuss the position adopted by Fries. Here we shall deal with a few isolated points. Kant asserts that sensation is a passive receptivity; this is modified later by the introduction of formative principles (time and space) and of imagination as a power which selects and groups the data. The actual contents of the mind are therefore really very complex products, and as no actual experience can ever give us the unformed data, as in fact the passively received matter has no existence apart from some formative activity, it is difficult to see what significance can be attached to Kant's conception of sensation. A modern critic would also point out that in fact sensations are modified by their relations; after great heat a moderate warmth seems chilly, and so through all the senses; there is a kind of self-arrangement which is not the work of the mind, and however far we penetrate there is never a mere chaotic multiplicity of states.

This serves to show that Kant had his limitations. He was unable to see that his outlook was limited to the operations of reason; he still thought of the "higher powers" as the sole organizers of conscious life. He attempted to modify the rationalism of this view by creating inferior powers called categories which were to be regarded as the indispensable preliminary activities of consciousness. These categories were not logical formulæ; they were functions in and through which the structure of thought must be developed. But can such categories be found? If they make experience possible, is not the question of their nature a psychological question which must be answered before we pass from the statement "these are the valid forms"

to the more ambitious declaration " these are the necessary and only forms " of all thinking? It is true that Kant did not use the term *a priori* with any reference to time, nor did he imply a psychological priority, but the point in dispute is whether Kant's avoidance of the psychological was not his chief mistake and the cause of his failure to recognize adequately that a real development is not the same as a formal synthesis.

This problem is too large for our scope and must be left without further argument. Something will be added as our history proceeds. The idea that Kant's true basis was psychology will be found elaborated by Fries: the Kantian tendency to make Reason a thing apart will be seen abounding in the Hegelian movement: the emphasis on Will and the moral life will be reaffirmed by Schopenhauer. From all these something may be learned, and in some sense all nineteenth-century philosophy is a commentary on Kant. But even this galaxy of writers does not exhaust the sources; the real significance of Kant's attitude is not felt until we reach the modern attempts to get away from piecemeal experiences and secondhand physiology into the region of that indivisible consciousness which they all presuppose. But Kant, one imagines, would have smiled discouragingly at the idea of an experimental method for the investigation of thought and will: the times have changed.

Kant's use of words has been a continual obstruction to the zeal of his readers. As the present subject is psychology, the formidable terms of the Kantian philosophy have not been required. A remark upon one or two of the best-known rubrics and a note on some features of Kant's work will complete all that need be said. The shibboleth of the accomplished Kantian is the phrase, " synthetic unity of apperception." It denotes the generally accepted fact that ideas are the functions of minds and, in plain language, that a person's ideas are what he calls his " mind," e.g. when he " makes up his mind." The " apperception " of this phrase is not strictly psychological in Kant's use of it, for it denotes only that there is a possible unity produced by holding together many elements (synthetic) and dependent upon the supposition of a unifying agency, an Ego.

The affinity between this and the teaching of Leibniz is obvious, but the difference requires to be noticed: for Leibniz used apperception as equivalent to a consciousness of being conscious, while Kant thinks more of the relation between what is given and what is reproduced. The possibility of holding together a present activity and a past activity seems to imply an agent in some sense independent of time, in Kant's language an Ego as distinct from the inner sense, a consciousness which is on a plane above the sequence of events in time. The advantage of this central unity is seen in its consequences for method. It regulates the psychological outlook and enables the theorist to present the individual phases of the conscious life on the background of pervading unity. The disadvantages are many. It is impossible to separate this Ego from similar conceptions which make no pretence of being functional, and therefore impossible to see how it can be interpreted without reviving the " soul " which Kant rejected. It is difficult to see how this concept can be defended against the implications of " multiple personality," which are better understood through complexes of ideas empirically united and not transcendentally synthesized. Lastly, this Ego is abstract in the sense that it requires the fixation of an ideal type of mental operation which afterwards never comes to terms with observable cases. This defect was undoubtedly due to Kant's belated use of the triple classification, animal, human, divine. The concept of a divine intellect, timeless and intuitive, was unfortunately introduced from current traditions. In ethics such ideal types serve as standards; elsewhere they are delusive; the very attempt to define the relations between human and divine thinking shows that the writer has dropped helplessly into a rut of schematism and analogy.

Another point of great interest is the question of social influences. In those minor writings in which Kant discusses habits and customs, law, morality and history, we find a movement that seems obstructed by some invisible hindrance. Kant went so far as to say that objectivity might really mean being true for others; he saw vaguely that intercommunication was a factor in the structure of the world

we know, but he never developed this into any doctrine of social or collective thought, and his own historical outlook might have furnished a good account of the movements of the " Welt-Geist." In view of later developments, good or bad, it seems only fair to Kant that one should recognize the undercurrents of reflection which perhaps gave more inner significance to the abstractions of the *Critiques* than their author revealed. Though psychology almost glides from Tetens to Herbart without a stop at Kant, and long reflection seems to show more and more how much great systems owe to their antecedents and the interests of their age, yet Kant remains unavoidable still for all who do not resolutely decide to abandon the hardest problems and be empirical at any price.

CHAPTER IV

INFLUENCE AND APPLICATIONS OF PSYCHOLOGY (1700–1800)

§ 1. THE significance of Locke's *Essay* was from the first more or less clearly grasped. The new way of ideas was, at any rate, not the old way, and the old way was felt to be more in accord with the current conception of religion. Into the metaphysical aspect of this subject we need not enter. The point of immediate interest is the growth of a critical analysis of religious emotions. Locke does not deny the possibility of revelation or of faith; but he insists on rationalizing both. Revelation is "natural reason enlarged": reason is "natural revelation": faith is assent to a proposition "upon the credit of the proposer, as coming from God in some extraordinary way of communication" (iv. 18, 19). This assent, when it goes beyond reason, is actuated by some emotion and not by the love of truth; so that Locke practically endorses the Stoic-Cartesian view that truth belongs to reason: belief, when it is not grounded upon evidence, is irrational and so far subject to condemnation.

The particular state of mind which leads to groundless beliefs is called "enthusiasm," and is described as "rising from the conceits of a warmed or overweening brain." As such it is to be condemned. The strength of a belief is no proof of its rightness; "if strength of persuasion be the light which must guide us, I ask, How shall any distinguish between the delusions of Satan and the inspiration of the Holy Ghost?" Thus Locke makes war upon all private oracles and indicates clearly the nature of psychological as opposed to logical conviction.

Shaftesbury dealt with the same subject in the same

manner but at greater length. While Locke deals with enthusiasm as part of the problem of truth and error, Shaftesbury is more concerned with the temperaments of individuals. Shaftesbury's choice of a title is significant; he calls his work *Characteristics* (1707). The subjective note is struck in the declaration that "'Tis not in every disposition that we are capacitated to judge of things; we must beforehand judge of our own temper." The method is also explicitly stated; we must "vouchsafe to descend a little into ourselves" and "this plain home-spun philosophy of looking into ourselves may do us wondrous service in rectifying our errors in religion." The consideration of individual tendencies can be supplemented by paying regard to social relations. There is a "sort of enthusiasm of second hand"; when a man has no predominant tendency he is apt to fall under the influence of others; "the combustible matters lie prepared within, and ready to take fire at a spark, but chiefly in a multitude seized with the same spirit." What this spirit is Shaftesbury does not presume to say, but a comparison of panics, enthusiasms and epidemics of prophesying lead him to a fairly clear comprehension of what is now described under the head of "mob-psychology." This has its good as well as its bad aspects, for "a publick spirit can come only from a social feeling or sense of partnership with human kind." This "sense" is original and natural; "if eating and drinking be natural, herding is so too; if any appetite or sense be natural, the sense of fellowship is the same." This principle operates throughout the length and breadth of society. "Nothing is so delightful as to incorporate." The factors which produce political societies are the same as those which lead to the formation of religious societies and all manner of Orders. "The associating genius of Man is never better proved than in those very Societies which are formed in opposition to the general one of mankind."

Shaftesbury was fully conscious of his own method and its limits. The reader is warned not to expect him to "draw up a formal scheme of the Passions" or to show "their genealogy and relation." His principal object is to give a new turn to the popular method of thought, to drive it

from its external way of regarding behaviour and force it to reconsider the nature of human reason. His polemic is directed against the transcendental, whether in the form of contract theories or in the guise of pure supernaturalism. The effect which he produced was exactly that which he wished to produce; attention was turned in a new sense toward the natural and the immanent forces which control conduct. From this standpoint Shaftesbury deals with the kindred topics of religion and morals.

The non-theological part of religion is the inner experience. and this is subject to morbid variations called "Enthusiasm." "There is a Melancholy which accompanies all Enthusiasm. Be it *Love* or *Religion* (for there are Enthusiasms in both), nothing can put a stop to the growing mischief of either till the Melancholy be removed and the Mind at liberty to hear what can be said against the Ridiculousness of an Extreme in either way." Abandoning all idea of supernatural elements in these exalted moods, Shaftesbury describes them as "commotions" to which the mind, as well as the body, is subject; they should not be aggravated by repression, but allowed to work themselves out by "fermentation." Examples drawn from history play a large part in Shaftesbury's arguments; he deals with superstitions as marks of national characteristics and attempts to elaborate the psychology of nations: the Greeks were not inclined to melancholy, the Jews "were naturally a very cloudy people and would endure little raillery," the Italians are the greatest of buffoons for "'tis the only manner in which the poor cramp'd wretches can discharge a free thought."

The principles of naturalism applied to the sphere of morals lead to a more definite treatment of the several "motions, inclinations, passions, dispositions and consequent carriage and behaviour of creatures in the various parts of life." Shaftesbury attempts to disentangle ethical and psychological judgments, showing that self-love, for example, is not in itself bad; it is primarily natural: and that religion, "according as the kind may prove," is capable of doing great good *or harm*. Distinctions of right and wrong depend on a natural sense, the so-called "moral sense," which is Shaftesbury's name for conscience, divorced from its

theological implications. In this connection Shaftesbury reviews the passions, but not in the way that is significant for the progress of psychology. The social value of the passions is allowed to exclude any thorough analysis, and the idea of a "balance" of passions as constituting the ideal temper takes the place of strict observation. While this lapse must be regretted, it is obvious that Shaftesbury is the real germ from which matured at a later date the new psychology of conduct, social psychology and folk-psychology. The interest of these English writers in the subject of Enthusiasm was directly related to the case of Madame Guyon. The pietism verging on fanaticism which found expression in Madame Guyon's *Torrents* was raised to an undue level of importance by its implications. As treated by Bonnet and Fenelon, it became the basis of a struggle between the concept of authority and the value of experience in religion. There was at the time a general tendency toward the reconsideration of tradition in the light of experience and a consequent appeal to the individual experiences which in some cases afforded matter for psychological discoveries. In spite of the widespread tendency toward deism and "rational" religion, the time was not ripe for these developments. Various forms of pietism came into being and new forms of expression were found for the religious life, but theory lagged behind and no genuine psychology of religious experience was attempted. The gap was filled to some extent by speculations on the nature of conscience, morality being more open at that time to unrestricted treatment.

Joseph Butler (*Sermons*, 1726) was one of the most prominent writers who attempted to provide a basis for religion and morality which could be accepted by those who laid emphasis on experience and, at the same time, would not serve to support irrational feelings. Leaning partly toward the belief in immediate intuitions of good and evil, in part also inclined to think the rationalists were right as against the sensationalist, Butler asserted first that conscience gives immediate judgments, secondly that it is by nature a feeling. Desire for pleasure seemed to Butler to require experience of the source of pleasure, and therefore to imply a more primitive desire for the object. Desire

for things is put first; desire for pleasure is made dependent on reflection; we do not desire food or friends primarily as sources of pleasure, but as natural objects of choice. By "natural" Butler meant practically what the Stoics meant by natural, and in accordance with that line of thought he supported his psychology with a teleological assumption that pleasure is the mark of harmony between desire and its object. Butler's psychology is consequently vitiated by beginning and ending with the concept of a typical individual, the developed moral person who will invariably "in a cool hour" know and desire the good. Very little ultimate value can be credited to this teaching but, in its historical position, it has the merit of avoiding the opposite fallacy. The attempt made by Mandeville and the cynics of the seventeenth century to reduce all action to calculation of advantage was happily terminated by Butler and his successors.

Hume was a convert to Butler's theory, and the true significance of the movement is seen in Hume's *Inquiry* (1751). Apart altogether from ethical values, the complex methods of deducing benevolence from selfishness by a "mental chemistry" was an error of analysis. No one would accuse Hume of modifying naturalism in order to appease theology, so that Hume's reconciliation of reason and sentiment may be accepted as a genuine product of philosophical reflection. Hume also brought to a close the literature of "enthusiasm." His essay on that topic draws a clear distinction between *superstition* which has its source in "weakness, fear, melancholy, together with ignorance," and *enthusiasm* which is "an unaccountable elevation and presumption" arising from "strong spirits" or a bold and confident disposition. In this essay various types of enthusiasts are enumerated, such as Quakers, Independents and Presbyterians. As usual, Hume adds something to the work of others, even when he traverses a well-worn subject, and his acute remarks on the nature of religions (*The Natural History of Religion*, 1755) have led some writers to describe him as the first to write the psychology of religion. For this Hume's qualifications were slight, and he cannot be granted more than the credit of understanding and utilizing the ideas of his contemporaries.

§ 2. The general interest in the nature of man, which was a prominent feature of the eighteenth century, became specialized in several directions. Religion and morals constituted one of these directions. From this another gradually diverged, namely that which led to the consideration of man as a social creature. Shaftesbury gave the first suggestion; Adam Smith expanded it and Hume supplied a distinctively political treatment of the subject.

Adam Smith's doctrine of "sympathy" was a part of his theory of moral sentiments (1759). It was designed to show that men are united by a direct feeling for one another. The proof of this was made to rest on community of feeling apart from calculated self-interest, and Smith made some valuable suggestions afterwards developed into definite theories. But Smith's "sympathy" was a curious mixture of imitation (as understood by Plato) and practical judgments. Confusion on this vital point reduced the value of Smith's exposition, for it was not possible to pass from imitation (e.g. the automatic reproduction of an actor's movements) to that exercise of judgment which marks the action of a man claiming justice for a friend in distress. Smith expressed most adequately the dissatisfaction aroused by the followers of Hobbes, but he made no substantial contribution to the psychology of conduct beyond indicating that the moral sentiments should be explained by means of the actual development of a social nature.

The confusion between motor impulses and rational direction of action was a defect that remained incurable in Smith's writings. The doctrine of sympathy lapsed, but the Utilitarians, having turned their faces to the world, began to see in it new matter for thought. Hume discovered that good and bad were employed to denote relative rather than absolute qualities. This relativity explained the idea we have of types; the virtue of one man is measured in relation to the vice of another and is different in degree rather than kind; man himself appears eminent because he is compared with animals inferior in his peculiar advantages. Similarly we must judge types of character as differences in the degrees to which the principal elements are developed. The priest and the soldier are instances of

qualities developed under different influences and in different proportions: the mixture makes the man. Nations can be treated in the same way; they are specialized types of man produced largely by "contagion." Man is by nature very imitative, and union in one political body gives endless opportunity for the acquisition of resemblance. Hume in his *Essays* is prepared to assert that all national characters depend on "morals," i.e. on intellectual factors[1]; we can "discover everywhere signs of a sympathy or contagion of manners, none of the influence of air or climate." This thesis Hume defends at length, making only slight abatement of its dogmatic generalization. The correctness of his examples need not be discussed; it is enough to show in what way Hume treated the idea of national characteristics and to record in its proper place this early attempt to give a psychological explanation of their uniformity.

There is a psychology which has for its object the social nature of man and another which treats individuals as they are met in the life of a society. This second type, a system of reflections on human beings, was essentially French by nature and origin. It had taken form at an earlier stage in La Rochefoucauld and La Bruyère; it was formed again and very differently by Vauvenargues. Born in 1715, physically wrecked by hardships during the campaigns of 1742–3, overtaken by death in 1747, Vauvenargues left a mark on the literature of character by his *Discours, Caractères and Reflexions*. As Pascal marks the extreme development of the pessimistic valuation of human powers and La Rochefoucauld the corresponding cynical estimate of human duplicity, so Vauvenargues is the typical advocate of the more balanced optimism which came as a reaction against both. The natural goodness of man is once more asserted; the affections are taken as the real basis of character; naturalism is defended against supernaturalism by the argument that all volition is a function of passions and ideas which co-operate to produce human action. Vauvenargues deals primarily with types of conduct and draws concrete pictures of those types. The theoretical part of his work is vague; the descriptive is more precise and realistic.

[1] Following the French use of *morale* as distinct from *physique*.

He complains that teachers aim to dull the vivacity of children when the impulsiveness and energy of their characters should be heightened and directed rather than repressed. In such points as these Vauvenargues reflects the tendency of his age, while he anticipates the attitude of the Encyclopædists and of Rousseau.

From 1750 onwards a form of positivism developed continuously in France. The theory of morals moved steadily away from the spiritualistic basis of the theologians and preachers; exhortation gave place to a positive mood, associated with a keen sense for the relativity of moral valuations and a tendency toward the explanation of conduct through circumstances and places. The old antithesis of soul and body was exciting opposition from two classes of men, the anthropologists and the men of the world. This movement, too often branded as materialism and consequently misjudged, was represented by La Mettrie,[1] who drew his inspiration partly from medical studies under Boerhaave, partly from direct observation of his own experiences during a fever. These influences were accentuated by a sense of opposition against the current idea of man; they were consequently allowed to produce exaggerations which must, however, be measured in relation to the contemporary state of opinion. La Mettrie's position was that of the psychic anthropologist; in other words he was seeking for an explanation of life in terms of both body and soul. The result was undoubtedly crude, but it was movement in the right direction. Beneath the bald statements that the senses are the source of all knowledge and that man is a machine only superior in degree to the animals which Descartes called machines, we must look at the deeper meaning. For here we find the most outspoken rejection of that doctrine which regarded man as wholly unique, a fallen angel, a corrupted image of God. The philosophers ignored La Mettrie because he had no philosophy; the theologians perversely judged him as a corrupt moralist; historians stigmatize him as a materialist. While none of these judgments is wholly wrong they are all in part irrelevant. It is as a naturalist that La Mettrie should be classed, and

[1] *L'Homme Machine*, Leyden, 1748.

his work should be ranked with the work of men like Huxley or Spencer, who in their day suffered similar treatment. Nothing was more conspicuously absent when La Mettrie wrote than the idea of man as a creature whose life is conditioned by physical states. That idea was to grow and La Mettrie should have the honour of being one of the first to stimulate that growth.

La Mettrie was probably responsible for the general tendency exhibited by Helvetius. In 1758 appeared the essays entitled *De l'Esprit*, an untranslatable phrase which is reduced to insignificance by being made equivalent to "on the Mind." Helvetius was not proposing to write a treatise on the soul; nor was he concerned to produce a new analysis of the understanding. The subject of the work is man as a social unit, and the *esprit* is the "genius" of such a man, in the old sense of genius as it survives in "genial." The range of the essays would be very curious if we were to regard them as parts of a textbook of psychology or of an essay on the understanding. Man is taken to be an intellectual, moral and political creature; in other words, he is an animal capable of intelligent action, fit for the society which evolves manners, and developed enough to have laws. The germ of the work is the intention to produce a general guide to clear ideas for those who no longer believed in the "soul" of the metaphysicians nor cared for the narrow cynicism of La Rochefoucauld. The first essay (in four chapters) deals with the "mind considered in itself," and is a perfunctory statement of the general empirical doctrine that sensibility and memory explain the contents of the mind; error is due to passions or to ignorance of the facts which would be required to form a complete judgment. The second essay, entitled *Of the Mind relatively to Society*, is the real beginning. The exposition is diffuse, adorned with quotations, references and examples. The most fundamental point is the assertion that interest is the constructive force in psychology and in conduct. This is considered in relation to individuals, small societies, nations, different ages and countries and finally the whole world. Interest operates as a principle of selection; we value the actions of others in relation to the ends which have interest

for us, and in fact we only understand others from the point of view of those interests. This is not difficult to prove in the sphere of morals; one nation praises what another blames; the courtier values attainments which to the scholar seem insignificant; the fanatic is enraged at the low standards of the average good man. All standards are therefore relative, a conclusion to which men naturally inclined when the study of anthropology was beginning to supply data for a sociology distinct from theological ethics.

The third essay deals with the relative importance of nature and education. Man is by nature normally well endowed to achieve a high level of mental power; but the achievement is conditioned by the opposed forces of inertia and passions. Progress depends on attention and involves activity; inertia would prevent this but for the fact that men acquire dominant passions or interests which heighten activity and fix attention. Passions therefore have their use; the affective part of the man is the living force within him which leads to high endeavours under the guide of reason and social approbation. The fourth essay expands this topic further in a series of discussions on faculties, such as imagination, sentiment, wit and taste. It concludes with a brief treatment of education.

The significance of the whole work lies in its character as an epitome of current tendencies. These were, chiefly, the tendency to make social pressure and social relations the reason for the various characteristics of men and nations; the tendency to lay slight emphasis on the intellect and pay more attention to the passions (envy, pride, avarice, ambition) which depend upon the social form of life; lastly, the tendency to see in the adult a complex product of education, defined as an art dependent upon the "knowledge of the means proper to form strong and robust bodies and wise and virtuous minds." The first and last word to be said on Helvetius is that he developed the positivism of La Mettrie in the direction of social anthropology.

The original impulse toward a comparative study of men and manners was given to France by Montesquieu (died 1755). Voltaire and Montesquieu returned from England in the same year (1729), inspired with a new outlook

on the world, the outlook of Locke's school. But Montesquieu was no psychologist, and his attempt to make climate and soil explain mental characteristics was the irritant that produced innumerable denials of any such complete relation between the physical and the moral. Hume and Helvetius are equally emphatic in their assertions that no such simple explanation can be recognized as adequate. Voltaire propagated the doctrines of Locke but made no contributions to psychology; the Encyclopædists as a whole were drawn away from the scientific basis to the sphere of controversy and belong to a general history of religious and moral writings. The speculative writings of the Encyclopædists proved a hindrance rather than a help; the formulation of a definite "atheistical" or "materialistic" position brought discredit on the genuine naturalism which was its original source. The great need of the time was for substantial scientific investigation, without which Locke's work must needs have failed to bear fruit. The new light in which the English empirical school had worked was now waning; the reconstruction for which it was adequate had been accomplished; and not until it was definitely superseded by a yet greater brilliance could there be another and a deeper insight into nature. Before noting the movements of scientific thought at the end of the eighteenth century some notice must be taken of the work done in comparative psychology, for as yet this sphere of inquiry was entirely under the influence of that empirical doctrine which had removed many defects but was itself in need of renovation.

§ 3. During the second half of the eighteenth century the Protestant attitude toward authority and the critical spirit of the Enlightenment combined to produce the idea of a natural religion. Religion based upon reason was opposed to religion based upon revelation; man was supposed to attain the truths of religion by his own powers and not by the special gift of God; the human being was specifically the religious animal. Thus the old question about animals in general was again raised. The position was very complex. Descartes had said that animals were machines; the extreme rationalizing party argued that men were animals

and therefore also machines; the extreme religious party drew a hard and fast line between men and animals, stifling inquiry; the moderate religious party was inclined to argue the question and show from the facts that animals were neither machines nor reasoning creatures. As the last party appealed to observation, both they and their opponents diligently collected evidence and so incidentally laid the foundations of comparative psychology in its first form as a comparison of men and other animals.

The standard teaching on the nature of animals was the simple assertion that they possessed blind instincts, but the limits of these powers were only vaguely determined. Writers like Montaigne, who affected contempt for human presumption, were pleased to revive extravagant stories of animal intelligence. The work of Rorarius [1] came into esteem and was printed as a rationalist manifesto. In 1713 Thomasius Jenkin repeated the examples used by Plutarch and Rorarius in what he called a *Philosophical Defence of the Souls of Animals*. Leibniz was driven by force of metaphysics to admit only a difference of degree between men and animals, not being able to deny immortality to brutes. This position was converted into a definite platform by the Leipzig Society of the Friends of Animal Souls in 1742. La Mettrie (1748) represented a more experimental tendency, basing his view of the affinity between men and animals on the structural similarity of man and the apes, following thus the comparative anatomy of Willis (*De cerebro et de anima brutorum*). Condillac also contributed a discussion of the subject which had a decidedly scientific turn. His *Traité des Animaux* (1754) was partly an attack on Buffon, whose mechanistic views he criticized severely, and partly an exposition of his own doctrine of sensations applied to the animal world. This second part contained many acute observations on the development of faculties in animals, the chief point being to prove that they advance under the influence of their needs and their environment just as men do, but actually never arrive at the level of arts, sciences, morality and religion.

Condillac was not a naturalist and his views had no root in observation. Charles George Leroy, who repeated

[1] See p. 215 and note.

and extended the work of Condillac by his *Lettres philosophiques sur l'Intelligence et la perfectibilite des Animaux* (1764), had all the qualities which Condillac possessed. Born in 1723, Leroy went to the school where Diderot had been educated, learned his philosophy from Condillac, maintained a friendship with the learned men of the time and was attached as keeper of woods and forests to the court of Louis XV. A courtier in some degree, a man of good understanding and a practical woodsman, Leroy was a useful man to employ in the writing of an article on "Instinct," or on the habits of animals. Darwin reckoned him a good observer, and more than one observation recorded by him has become classic. But the knowledge of detail did not prevent Leroy from being silly in some of his work, especially in his proof that animals count up to six!

The Encyclopædists had a natural bias against the traditional (ecclesiastical) doctrine of instinct. In 1754 Hermann Samuel Reimarus had produced a work dealing in part with the question of animal intelligence: a more definite discussion of the same topic followed in 1760 and became a popular work republished in 1762 and 1773. Reimarus was creating a stir in Germany by his opposition to the idea of revelation; he was a centre of theological disputes, an "advanced thinker" in those days. A man of wide reading with a taste for cosmology, Reimarus is decidedly scholastic in form and method. He had some idea of biological and psychological principles, but spent too much energy in the formal demonstration of the difference between plants, animals and men. At the end we find that animals are credited with instinct but not reason, as Thomas Aquinas said. Reimarus opposes the "automatism" of Descartes and the "mechanism" of Buffon, believing that animals are created with natural impulses and "powers," but not with substantial souls such as men possess. The value of the work done by Reimarus lay chiefly in its careful elaboration of the zoology of the period. Leuwenhoek, Roesel and others had studied the structure of animals, and the wonders of insect life were new to the public. Sensation, attention, recognition and involuntary connection of memory-images could be shown to be phenomena of

animal life. But comparison and reflective thought, the formation of concepts, Reimarus denies to animals. These are the higher capacities which distinguish man. Apparent cases of inferences drawn by animals are adequately explained by association and the instinctive expectation of similar results from similar situations, such as the familiar action of the dog running away at the mere sight of the uplifted stick. The "arts" of animals—the weaving of the spider, the cell-building of the bee and other similar operations—Reimarus ascribes to innate impulses determined by specific structures. The establishment of this point is one of the objects of the whole undertaking, for Reimarus is particularly anxious to show that determinism is characteristic of all infra-human activities.

The German Enlightenment was religious in tone, and Reimarus carried that tone into his discussion of animals. The French enlightenment was of a different kind, and Leroy, influenced by the Encyclopædists, attacks Reimarus as much as Cartesian automatism. For Leroy the question of a spiritual essence has no interest; he works on the assumption that man is a superior animal and that the superiority is explained by greater development of powers common to man and the other animals. While Reimarus is critical and conservative, Leroy is uncritical and rash. Many of the points discussed are common to both writers, but Leroy is distinguished by his consistent development of Condillac's sensationalism. He distinguishes between the state of nature and the state of culture, arguing that the difference produces corresponding differences of intelligence. Parallel with this can be set the differences between primitive and civilized men. Animals have sense-faculties, but their individual needs create specific interests, and so the senses develop differently in different species. To sensation is added memory and "ideas acquired by reflection"; animals compare and judge, as for example when a fox prepares to leap over a wall, it judges the possibility of doing so safely. A young animal makes mistakes that an old one avoids: this proves some development in the capacity of judging. The practical man, the hunter and trapper, knows this fact from his experience. Leroy proceeds to assert

that animals know the time of day, count, converse, have social and ethical sentiments—in fact, all complex forms of sense and feeling, but not pure abstract thinking. Particular attention is paid to the development of feelings among animals. The fundamental tendency to self-preservation is accompanied by feelings of insecurity which lead to formation of societies; that these societies are formed and maintained by self-interest, was, for the circle in which Leroy moved, an obvious and commendable fact. Mandeville and his *Fable of the Bees* were not forgotten. Animals do not act unselfishly; on the other hand they are free from brooding hate, and only quarrel in the seasons of sexual excitement and competition. The sexual relations are curiously described, with a touch of gallantry. The parents love the offspring, sympathy abounds, the mates are chosen and the union is a genuine marriage with mutual respect! The age was fond of exalting the "natural" relations and accusing its own artificiality; it is easy to see how recklessly all the "natural affections" are here transferred to animals. We begin to lose confidence in this writer of letters on animals. Yet apart from the exaggerations, many good things are said. In regard to the will, Leroy says it begins in self-preservation; it develops through curiosity into a will to know; finally it reaches the level of "free will." These animals seem to be precociously human, but Leroy makes an important reservation. In essence animals and men are not distinct; but animal life is simple and its needs, being few and easily satisfied, do not drive individuals to perfect their powers. There is no real social life, no articulated speech, no higher refinement, because no forces carry the animals to such complicated levels of existence. Needs produce activities, and without needs activities lapse. So Leroy came at least within sight of a theory of development based on use and disuse; he expressly says that the organism transmits acquired aptitudes, and he quotes examples of the way in which unused faculties lapse. Here we reach the main point against Reimarus. Instincts are not special and providential gifts; they are habits acquired under the pressure of needs and converted by use into dispositions or connate tendencies.

In spite of exaggerations Leroy made excellent use of his knowledge. The work of Reimarus "smells of the lamp": that of Leroy is a curious mixture of natural history and artificial philosophy. The vitality of Leroy's *Lettres* is well shown by the way in which his name recurs in the writings of Lubbock, Romanes, Darwin and Ribot. In passing from Reimarus to Leroy we pass from the old to the new, from the spirit of the eighteenth to that of the nineteenth century.

§ 4. The latter half of the ighteenth century was full of important events in the history of the sciences. Many of them directly affected the character of contemporary views about life and mind; others, though ineffective at the time, were the first beginnings of the greater achievements of the nineteenth century. A brief account of the work done during the years 1750 to 1800 is a necessary prelude to the study of the most recent phases of psychology.

In the sphere of the special senses Vision continues to be the focus of interest. After the appearance of Berkeley's work a large number of contributions were made to this subject. The progress achieved was due to careful investigation of detail, showing that the science of optics was rapidly becoming more stable and more sure of its own specific problems. The famous Cheselden case (1728) appeared to present a unique opportunity for determining the vexed question of the relation between vision and touch: but, in fact, it remained to the end of the century a doubtful asset, and in his *Aphorismen* (1793) Platner returned to the position that perception of space is confined to sight, the perceptions of the blind by touch being confined to sequence in time: for the blind, said Platner, time takes the place of space.

In 1738 the work of R. Smith, *A Complete System of Opticks*, presented a critical survey of this subject, along with an essay on *Distinct and Indistinct Vision*, by Jurin. The latter is noteworthy for its treatment of the phenomena of after-images and contrast. Newton had treated after-images as psychic phenomena, a view which could only be held on the basis of the ancient notion that the eye has an inner light which can "emanate." Jurin aimed to give

an explanation of these images by supposing that the original stimulus persisted and caused a reaction by which the opposite sensation was produced. This view has been regarded as anticipating the general purpose of Hering's work. It was reasserted at the end of the century by Venturi, *Dei Colori Immaginarii* (1801), who "maintained that the changing tints of after-images excited by the pure colours of the spectrum proved the existence of a multiple function for each nerve-fibre." [1] In this statement there is the further point that Bonnet had practically enunciated the formula of "specific energies" (see p. 299), and Venturi is opposing the conception of "one fibre one function."

At this date the subject was limited to phenomena of successive contrast. Buffon, and after him Father Scherffer, undertook investigations upon this subject. Scherffer, for example, painted flowers with their complementary colours: the theory here implied was that of four colours. The work of Wünsch (*Ueber die Farben des Lichtes*, 1792) showed that a mixture of three colours could be made equivalent to any colour. The way was thus prepared for Young's theory, since these investigations showed that the number of primary colours was small and that each colour sensation was the function of some nerve-structure specially adapted to it.

Among other topics discussed in this period were the following: the duration of sensations of light, measured (after Newton) by Segner (*De Raritate Luminis*, 1749); measurement of sensibility by Bouguer (*Traité d'Optique sur les Gradations de la Lumière*, 1769); the process of accommodation, which occupies most of the prominent writers (Camper, 1760, Porterfield 1759, Haller). The work of Priestley on the *History and Present State of Discoveries relating to Vision, Light and Colours* (1772) was the most important addition to the general literature of the subject.

Before the seventeenth century had closed the mechanists and the animists were two clearly distinguished types of theorists in physiology. As against iatrochemists and iatromechanists Stahl may be said to have had some

[1] So stated by Burch, *Proc. Royal Soc.* lxvi. 204 (1900). I have not seen the work of Venturi.

justification: but his theory required modification and his point of view survived in the kindred but different theory of the vitalists. The starting point of this vitalism is to be found in the doctrine of irritability.

In 1672 Francis Glisson, Professor in Cambridge, wrote a work, *De Natura Substantiæ Energetica*, in which he ascribed to the muscles a power of responding to stimulation, and described this "irritability" as a general property of living matter. This was a new idea in so far as it substituted for a specific faculty of motion a more adequate concept of a general property of the tissues. But Glisson obscured his teaching by speaking of this irritability as a perception of irritation, and the point was not developed further. When the fact was again brought to notice a century later by Albrecht Haller, it was supported by more adequate proof and stripped of irrelevant additions. Haller treated the fact of irritability as a physiological datum and dissociated it entirely from sensibility; he was concerned only to demonstrate the properties of living tissues, and he reckoned irritability and sensibility as fundamental characteristics of vitality: he consciously opposed this irritability to the elasticity of inorganic substances.

The significance of Haller's views on irritability was differently understood by different speculative writers. If, as Haller's teaching suggested, all those parts of the body which possessed irritability were endowed with a life of their own (a material life, so to speak), what need had they of a "soul"? The opportunity was obvious, and it was quickly taken by La Mettrie. Moreover, La Mettrie insisted on dedicating his work, *L'Homme Machine*, to Haller, who was assiduous in repelling this dangerous and self-elected friend. Haller sums up the point thus: "Since irritability remains after death, since it is found in detached parts of the body which are withdrawn from the empire of the soul, since it is found in all the muscular fibres, since it is not dependent on the nerves which are satellites of the soul, it is clear that it has nothing in common with the soul, that it is absolutely different; in a word, that irritability does not depend on the soul and consequently the soul is in no sense this irritability." This protest did not save

Haller from being associated with the materialistic movement, especially as the rapid progress of research made further inroads on the traditional view of the soul.

Haller was a pupil of the great Leyden school, the school of Boerhaave and Albinus. One of the principal merits of this school was the attention paid to the study of the nerves, and the researches made on this subject prepared the way for successes not actually achieved at the time. Haller still retained the doctrine of animal spirits; he was their last great advocate, but even he considerably reduced their functions. The spirits were, at this time, supposed to be produced in the cortex, but Haller showed that the cortex was not the seat of sensation nor even the sole and only originator of movement: the white matter of the cerebrum and cerebellum was the real basis of both. Haller accordingly rejected all previous attempts to determine the "seat of the soul," and thus made room for a new beginning in the doctrine of localization. On the other hand, great importance was attached to the convolutions of the brain. Memory was explained as the persistence of impressions on the brain-substance, and a prodigious amount of area was required to accommodate even the memories of an ordinary individual. The convolutions gave the supporters of this antiquated psychology new hopes that room might still be found!

Under the combined influence of the two dominant ideas, irritability and animism, R. Whytt (1714–66) and Unzer (1727–99) laid the foundations of a doctrine of reflex action. Descartes had treated the facts which he observed as cases of mechanical reflection, analogous to the reflection of rays of light. The eighteenth-century physiologists had reached a much more developed stage; they were no longer concerned with mechanical reflection but with vital reaction, and to explain this it was necessary to show a connection between "feeling" (this term being used to denote an action of the sensory nerves which does not arrive at the level of consciousness) and consequent (unintentional) motion. Observations of decapitated frogs suggested to Whytt and Unzer that the spinal cord was the mediator between "feeling" and movement in some cases, and this

was designated reflex action. A more definite interpretation of the data was given by the Hungarian, Prochaska (1749–1820).

Under the term *vis nervosa* Haller designated the power of the nerves to excite the actions of the muscles. Prochaska adopted the term in a wider sense as a general name for all the phenomena observed in the study of the nervous system. Thus the term really ceased to be the name of a thing at all: it became the symbol of a group or class of observable facts which were to be described without reference to any hypothesis. The description thus begun is now a classical example of scientific work. The *vis nervosa* was declared to be in the nerves, apart from the brain; it could be divided; it acts only in response to stimulus and is presupposed in all irritability. Irritability belongs to muscular tissue, sensibility belongs to the nerves. The nerves are only conductors, for the true centre of sensation is the brain; consciousness may or may not accompany sensation. Prochaska gave a very definite account of the reflex action, describing it purely as the transference of motion from the sensory nerves to the motor nerves, a process which could occur automatically without the intervention of consciousness.

To Haller's definition of the *sensorium commune* as coextensive with the white substance of the brain, Prochaska (and Hartley) added the medulla of the spinal column. Unzer and Prochaska adopted the view that the ganglia are also sensoria, capable of controlling reflex movements without reference to the cerebral centres. Thus the general description of the neural action which accompanies sensation and movement was brought to a high state of completeness. For the activities of thought Prochaska reserved a soul or psychic force distinct from the physiological *vis nervosa*. This distinction did not prevent its author from applying to the higher faculties his ideas of localization. The localization of the sense functions was naturally to be looked for at the point where the nerves concerned had their inner termination: to this Prochaska was tempted to add localization of "faculties," such as imagination, perception and memory, anticipating the methods of Gall.

The sciences of life were now well on the way toward

regeneration. After doing good service for many centuries, the nerve-tubes and their " spirits " gave place to a doctrine of " fibres," a change which explains much of the novelty in the psychological theories of Hartley, Bonnet and all the so-called " fibre-psychologists." Haller's doctrine of irritability inspired the French school of medicine with new ideas which took form as the Vitalism of the three B's (Bordeu, Barthez, Broussais). This was at first no more than a principle of method expressing the belief that vital phenomena are not reducible to the formulæ of inorganic life ; unfortunately it grew from a method into a cult and, being adopted by German enthusiasts, passed into an entity called Lebenskraft. For half a century it was by turns either the motto of anti-mechanists or a pure nuisance.

Recently attention has been drawn to the works of Swedenborg, which in date precede the last mentioned writers. Swedenborg's *De Cerebro* (1745) has been said to give " the essential features of the modern doctrine concerning the relative positions of the motor centres in the cortex of the brain " : while the theory of " cerebellula " is asserted to reach the same results as the modern neuron theory. To such merits the historian cannot be indifferent, but Swedenborg's contemporaries appear to have remained in ignorance of these achievements. Prochaska's elaborate historical notes do not mention Swedenborg, and the recognition of his merits has been the outcome of modern research.

Of deep and lasting importance was the work of Bichat, known to science as the founder of modern anatomy. The work of Vicq d'Azyr and of Soemmering was bringing general anatomy to a high state of perfection. Bichat (1801) gave a new turn to the science by investigating more minutely the tissues of the organism in order to discover the actual location of diseases. At the same time, comparative anatomy in the hands of Cuvier and others began to take a definite position among sciences. At an earlier date Trembley (1744) had inaugurated the study of micro-organisms by his observations on fresh-water polyps, and in 1745 Bonnet produced his *Traité d'Insectologie*. Taken together, these achievements increased rapidly and remarkably both the range and depth of the sciences of

life. Next came the *Theoria generationis* of C. F. Wolff (1759), which stated a true doctrine of development applicable to plants and animals. Goethe's *Metamorphoses of Plant* (1790), an independent statement of the same principles, secured for Wolff's theory the acceptance which had been obstructed by Haller's rejection of "epigenesis." The concept of development now began to be active in many directions; in addition to Wolff and Goethe, Kant, in 1755, supported it by his statement of the nebular hypothesis. Buffon's *Histoire Naturelle* (1749), in spite of errors and omissions, was a force working in the right direction, and its wide sweep of speculation helped to educate his generation in the art of comparative thinking. Kant's *Anthropologie* (1775) showed that the old barriers were breaking down and the evolution of man from animals was no longer regarded as outside the range of sane speculation.[1]

The sciences can never be wholly separated; they continually exhibit a unity of interaction. From pure thought to chemistry is a long journey, but the stages are well marked and nicely graded. The "spirit" of the ancients was the breath of life; for the physiologist respiration is a function of the organism, and respiration has certain aspects which can only be explained by the chemist with his analysis of combustion. Preliminary work achieved by Black (1760) and by Priestley (discovery of oxygen) culminated finally in Lavoisier's demonstration that men, animals and plants have a function of respiration which can be expressed in terms of chemical combustion: the original dictum that "the breath is the soul" was thus at last reduced to its true significance.

While the operations of the organism were thus attacked separately and seemed to be justifying the "materialists," the general study of functions supplied another point of view. Life was defined by Bichat as "the complex of functions which resist death," and in this modified form vitalism went on its way. Bichat classified the functions as organic and animal; the former constitute a group which is independent of the will, the latter are subject to the will.

[1] Erasmus Darwin's *Zoonomia* (1794) belongs to the class of ineffective suggestions toward an evolutionary system which this age produced.

For the history of speculative thought this division has great importance. If it is accepted, there is obviously a light and a dark side of human nature; there is a realm of activity in which man knows what he does, and at the same time there is another realm in which actions go on autonomously. Man is thus a creature divided against itself; nature in him goes on in its eternal course, necessarily making irruptions into his voluntary life which he barely notices; in a word, the whole system of conscious activities becomes an upper structure built on a dark foundation of natural processes which obey the transcendental "blind will" of nature. The significance of this physiological scheme for later writers is to be seen alike in Schopenhauer's theories and the whole range of "theories of emotion."

The natural or experimental point of view pervaded the last decades of the eighteenth century. It seemed as though the secret of life and mind was about to be revealed, and Galvani's discovery of an electrical "fluid," which he thought existed in animals, came at a moment when expectation was on tip-toe. This event (1789) had been preceded by Mesmer's empirical assumption of "animal magnetism" (1778) as an explanation of the phenomena of hypnotism. Though these guesses at truth were inaccurate and led to foolish imaginations, they were in the end fruitful when Oersted's electro-magnetism (1820) gave a fresh start to physiologists in the study of neural functions. The empirical methods of the time produced better results in less recondite matters. Of this we have a good example in the direct study of functions undertaken by Pereira in his treatment of deaf mutes, the similar attempts of the Abbé de l'Epée (also in France), Braidwood in Scotland and Heinecke in Germany. Underlying all this work was the idea that complex functions could be analysed into simple elements; if lost or deranged they could be reinstated by beginning to build up the elements. In 1772 Herder declared language was a natural expression of the inner life; it was not a mysterious property of the soul, but an acquisition of man with a history and an intelligible nature. In 1786 Chladni created the science of acoustics by his experiments on vibrations. In the last decade of the century

Pinel in France and Hack Tuke in England boldly renounced all the traditional views of " madness " (still largely regarded as " possession ") and proposed to treat insanity as a derangement of function by the methods of pathology. Thus the lines were continually converging. Rousseau, originally one of the editors of the *Encyclopædia*, carried forward in a new form the principles of Shaftesbury's teaching. Rousseau's reputation was made in the sphere of political theory and of pedagogy. Both subjects are treated from the point of view of human nature and the guiding principles were not new. The idea of the " natural man " had been steadily growing since the publication of Locke's *Essay*. The corresponding emphasis on natural endowments and free development was easily derived from this fundamental conception. Rousseau's importance is due to the fact that empiricism was then hardening into a rigid doctrine of development as the mechanical product of sense data and their combination, while neither the education of the senses nor the individual's activity received sufficient attention.

The idea of training the senses seems to have come from Jacob Rodriguez Pereira, a Spanish Jew who had migrated to Bordeaux. Having fallen in love with a young woman dumb from birth, Pereira devoted all his energies to the discovery of some means by which the senses could be trained without the medium of language. The methods employed are not accurately known, but some success was attained, and the significance of these results lies in the importance attached to each separate sense as an independent contributor to the intellect. Rousseau was a close neighbour of Pereira and took great interest in the work carried on in the school for deaf mutes. The principles reached by Pereira in abnormal cases were transferred by Rousseau to normal children; for if so much could be done for those who were naturally defective, what might not be achieved with others possessed of all the senses? A further deduction was involved. The intellect presented itself as a power that strives for expression and uses the senses to attain that expression; the life of the mind thus regarded is something distinct from mere accumulation of material; and it becomes possible to unite a high regard for the senses

as a source of knowledge with a just valuation of the inner process of mental development. Fortune brought to the French theorists a real "wild man," a genuine child of nature, the "savage of Aveyron." This "wild man" was really a boy found in the woods of Aveyron in 1799. He was clearly destined to be the crucial test of the new theories, and as such was given over for treatment to Itard (1775–1838), a physician at the institute for deaf mutes in Paris. Itard was not successful; after years of labour the task of reconstructing this mind out of the elements of mind was abandoned: it was perhaps a just sentence passed upon the method of Condillac, a final condemnation of mere analysis. But the lack of results which thus cast a gloom over the optimistic minds of the new theorists, need not make us forget the real value of the efforts made. Pinel was to be followed by Esquirol and the whole modern development of psychiatry: the interests of the naturalist and the doctor were fused with the interest shown by the Encyclopædists in man as a social and political animal; out of the turmoil emerged a new type of thought and literature concerned with the interrelation of mental and physical functions. We shall confine the study of this literature to the most conspicuous example, the work of Cabanis.

§ 5. In spite of its subtlety and acuteness, Condillac's treatment of the human understanding was not calculated to prove satisfying. It was coloured with a peculiar artificiality; it was redolent of good society, and its very precision seemed to prove it inadequate to nature. Condillac began from a statue, and he ended with what was to the last a lay figure. Upon this weakness the friends and disciples of Condillac were not slow to seize: foremost among them was Cabanis, who was well fitted to supply the defects which were obvious in Condillac, and are perhaps inevitable in any mere analysis of the understanding by the understanding.

Pierre Jean George Cabanis was born in 1757, the son of a practical man, who in addition to his occupation as a lawyer had been successful in reclaiming barren land and had helped the reforms of Turgot. The son did not appear at first to possess the industrious temperament of the father:

he neglected his studies and was in consequence deported to Paris by the indignant parent and left to shift for himself. This rather peculiar treatment explains the extraordinary variety and range of Cabanis's reading. We find in the end that he had an excellent knowledge of Hippocrates and Plato, enough knowledge of Aristotle to correct the general impression that he had declared all knowledge to come from the sense, some acquaintance with Cicero, Tacitus, Plutarch and Augustine. Among the moderns he was particularly conversant with Montaigne, Charron, Locke and (of course) Descartes. He had a taste for poetry, and translated at different times such widely different subjects as Homer's *Iliad*, Goethe's *Stella* and Gray's *Elegy*. The years spent in acquiring this varied stock of knowledge were not wasted, but they might have proved a dangerous beginning if the young man had not rather suddenly adopted the medical profession, and from 1778 devoted himself to a more disciplined course of life. He applied himself strenuously to the study of medicine, retaining a peculiar affection for the ancients, Hippocrates and Galen, but drawing from them inspiration for the reform of medicine in his own time. We find him afterwards an authority on systems of education, reviving the comprehensive ideas of Plato and moderating them into practical prescriptions for the French Government in its many endeavours to establish a national system of education. We find him also acting as professor of medicine, more inclined to discourse upon its history than demonstrate the practice, yet in his turn dealing with the nature of diseases from what was then a new point of view, and, above all, insisting on the relations of mind and body in every stage and crisis of life. From first to last this was the dominant interest in the life of Cabanis, and it is to this that we shall shortly turn our attention. For Cabanis has been deservedly called the founder of the modern physiological psychology, and his method, by extending the scope of Condillac's work, laid the foundations for the development of the complex French psychology of the nineteenth century.

Condillac was by no means an isolated figure in the French society of the period immediately preceding the

Revolution. When Cabanis arrived in Paris in 1778 he was able through the influence of Turgot to ally himself with one of the most brilliant literary circles ever formed. Around the gracious figure of Madame Helvetius moved such great luminaries as d'Holbach, d'Alembert and Diderot. Voltaire was affable to the young man, Franklin was his dear friend and Condorcet was a relation by marriage. Among the great men known as the Encyclopædists Cabanis was a youth of promise: among the Ideologists he was a mature thinker and a leader in politics and science. A pupil of Locke and Condillac in his own studies, he was the master of the generation that included Maine de Biran, De Tracy and the other eclectics. Admired in his youth, valued in his maturity and honoured at his death, Cabanis became in a few short years the symbol of degenerate materialism, a name to be uttered only with apologies, the type of all those who had trodden the godless ways of science. Among those who directly influenced him must be named Dubreuil, a doctor who laid much stress on the psychic factors in disease, Mesmer and, at a later date, Pinel. These names suggest the source from which Cabanis drew at least part of the inspiration to treat the human being psychologically as well as physiologically. Bichat, Pinel and Cabanis stand together as the three great exponents of philosophy and medicine during the last decade of the eighteenth century.

Cabanis began his psychophysiological writings in 1795 with an essay on a theme of melancholy interest at that time, the question whether the victims of the guillotine suffer any pains after decapitation. For Cabanis this was not a matter to be treated in any other way than that of scientific deduction, and his view of the question showed that he had already evolved one of the most significant of his ideas on the relation of mental to corporeal life. As it was expressed more fully later, this was the idea that consciousness belongs to a central Ego, *le moi centrale*, and that this central Ego is an epitome of all the separate centres which the nervous system creates. The apparent signs of life which might be exhibited by the decapitated body are then explained as activities of neural ganglia which are relatively independent of the brain or central Ego.

From this basis Cabanis builds up the whole structure of his teaching about the conscious life of man. We notice at once that he is not primarily concerned with Condillac's subject, but Condillac was the most prominent psychologist of the day and Cabanis feels that he must define his attitude toward that standard. He does so in clear and precise terms. The chief fault to be found in Condillac is that he will not admit the existence of instincts in the proper sense : he insists that an instinct is a rapid inference. For Cabanis an instinct is thoroughly organic, wholly independent of the central consciousness and therefore wholly independent of the rational activities. Cabanis identifies the central Ego with the brain. He does not mean that the brain is the principal seat and organ of the soul, for he does not propose to assume the existence of an agency behind the visible agent : by the brain he means the supreme nervous mechanism which is indispensable for the operations called conscious. It was from this point of view that he made his famous statement : " To form a correct idea of the operations whose result is thought, it is necessary to regard the brain as a special organ whose particular function it is to produce thought just as the stomach and the intestines have the special function of carrying on the work of digestion, the liver that of filtering the bile, etc." Unscrupulous and perhaps unintelligent persons quoted this afterwards as the crowning proof of the materialism of Cabanis : clearly it is a sufficiently sound analogy which does no more than lay down the fundamental principle of cerebral physiology in its relation to psychology. The spiritualists who misused the passage were quite right in regarding it as the antithesis of the declaration made by Descartes that some operations of the mind, in fact all the important ones, are carried on without the help of the brain. A very few years after the death of Cabanis men were again discussing the futile question whether ecstasy was a non-corporeal state and whether the " higher " operations of the mind were conducted without the brain's assistance.

To return to the question of instinct. The fundamental point against Condillac is that the psychology of the statue excludes all co-operation in the organism, all sympathetic

relations within the organism, all that unity of operation which Cabanis says that Hippocrates so rightly insisted upon. Cabanis means to say that a sense studied in isolation is not a sense at all: the operation of explaining the mind by adding sense to sense can only be correctly carried out if we begin with the senses as they appear in the actual organisms of human beings. If the theorist retorts that he is dealing with sensation in general, he is met with the reply that that is his particular besetting sin. There is no such thing as sensation in general: a statue might attain such pure sensations, but in the actual living being the sensation is a particular activity which must be regarded as a function dependent on the whole structure and nature of the organism in question.

At this point we reach the line that divides Cabanis from Condillac. Formally expressed, it amounts to a difference on the question of activity. But it is necessary to avoid carefully the error of rushing into voluntarism without further discrimination. One way of criticizing Condillac was to assert that he overlooked the spontaneity of the spirit. This is exactly what Cabanis did not do. He says nothing of the spirit or of will in that sense, regarding them as abstractions no better than Condillac's sensation. He remains true to the method of Condillac, the ideal of analysis, but instead of taking as his basis the understanding he begins with the individual as a living totality of organs and functions. Any given mental event is then a function of this organism and not merely an activity of mind. Cabanis then goes right back to the beginning. Before the first sight or sound reaches the nervous mechanism there is a long period of embryonic development which, though we cannot say much about it, must certainly have some cumulative effects, and these enter as qualifying conditions into the first sensibility of the outer world. Sensation in Condillac's way of using it, is therefore very far from being the real basis of life. The fact is, as Cabanis points out, that we pay far too much attention to the outer sensations. The most important thing for the adult is the acquisition of knowledge, and this fact gives a spurious importance to the avenues by which that knowledge enters.

But the science of the mind must not be distorted by that kind of consideration: it must think of the person in the way in which the person rarely thinks of himself. The ordinary individual overlooks just those points which science has to investigate, whether by objective study or by introspection. The persistent background of all isolated activities is the object of Cabanis's researches. Beginning from the embryonic stage of life, he proceeds to indicate the significance of each decisive crisis in the development of the organism. The earlier stages are marked by a lack of stability in mental actions. This stage terminates at puberty, when new developments of the organism produce the most decisive changes of mood and mental outlook. "The adolescent, haunted by a vague restlessness, ceaselessly plunged in objectless reveries, moved even to tears by the slightest impressions, begins to find pictures in his imagination and inclinations in his heart that surpass his knowledge. While the hearth of the passions is kindled in his breast, his soul, allying itself to all that surrounds it, rushes on to unknown ends—the stature, the features, the manner, the looks, the sound of the voice, all take on a new character." Similar parallels can be drawn at every new stage of development, and Cabanis rightly suggests that for the full understanding of the human being it is necessary to study all these phases of life—childhood, adolescence, maturity and old age: and in addition to these normal states the effects of accidents, of mutilations, of intoxication and all the forms of disease should be studied. He included also crime, significantly defined as another species of mental derangement.

Cabanis does not give many details or examples of the cases he had observed: he was more concerned with the reform of method than with the actual carrying out of researches. The few quoted by him show a keen power of observation, and have in some cases become classic instances. For the later development of the science of man, Cabanis is the most important writer of this period. The proof of this is contained in the mere statement of the subjects to which he gave a new impetus. By his insistence on the axiom that the study of the mind must be closely united with the study of the organism, he gives the psycho-

physiological point of view a practical basis. His own way of stating this was by saying that there is an inner man as well as the outer man, and this inner man is not a nebulous spirit but the brain and the nervous system. In addition to the outer senses there are also inner senses, not such as reflection and memory, but the senses which represent in our total consciousness the conditions of the inner organs, the viscera, muscles and membranes. Into every definite act of the mind these enter, not necessarily in such a way as to make us conscious of the part they play, but so as to determine the total state of mind. The question which Condillac has not answered is the preliminary question, What is sensation? The answer which Cabanis proposes is that sensation is a relation between the organism and the object resulting in a conscious condition which arises mainly from the whole trend of the individual's life. It was easy to support this notion of sensation by referring to hallucinations in which the subjective tendency overpowers the normal force of the objective stimulus, and so shows more clearly the degree to which normal perceptions are not passive states of reception but activities. In justice to Cabanis it must be added that he was clear in his mind on the distinction between irritability, sensibility and perception. He maintains firmly that it is possible to have sensations without sensibility, i.e. without conscious presentation. He thinks that sensation and presentation have been wrongly identified, for nature has provided by means of lower nerve-centres for operations distinct from mere irritability that do not amount to consciously recognized sensations. To the axiom that all knowledge comes by way of sensation Cabanis added the statement that all sensation is not necessarily (clear) knowledge. This rejection of the narrower standpoint of the Enlightenment created a new epoch. From Cabanis arose the various departmental studies by which the concept of psychology was to be continuously enlarged, including the study of abnormal psychology, of national or ethnological psychology, of genetic psychology, and of social psychology. The last was in Cabanis no more than an indirect deduction from the idea of a true education, which Cabanis described (after

Rousseau) as the correct development of the natural powers, and then proceeded to treat as a process involving primarily the relations of individuals in society. He saw indefinitely that here was a store of influences distinct from the objects about which children were instructed in schools and involving in their operation all the physiological and emotional life which men agree to consign to the heart rather than the head.

NOTES

P. 9. See Pohlenz, M., *Von Zorne Gottes* (1909).

P. 27 προσεκτικόν: Hamilton, W., *Metaphysics*, p. 139 (1859); *Works of T. Reid* (1880), p. 941, for quotations. Recognition of this special faculty is ascribed to Philoponus, *Comment. on De Anima*, iii. 2, Michael Ephesius, and Michael Psellus.

P. 28. For Aristotle's views see *H. P.* i. 100.

P. 29. Alexander's comment [*De Anima*, 84, 24] introduces explicitly the *tabula rasa* (πινάξ ἄγραφος), but the simile is not intended to emphasize the *tabula* so much as the *condition*, i.e. the absence of marks and the presence of the conditions which make it possible to produce impressions. See Nourrisson, J. F., *De la Liberté et du Hasard* (1870); Ravaisson, F., *Essai sur la Metaphysique d'Aristote* (1837).

P. 30. Cp. *De Abstinentia*, Bk. iii. Purpus, W., *Die Anschauungen des P. ueber die Tierseele* (1899).

P. 38. Claudianus: *P. L.*, liii. The name in full is Mamertus Ecdivius Claudianus: on the variations of this, see *M. C. vita eiusque doctrina de Anima Hominis*, R. de la Broise, Paris, 1890.

P. 40. Cassiodorus: *Ritter*, vi. Theil, 602.

P. 43. See *Ritter*, vi. 510.

P. 45 Chap. iv. See *Carra de Vaux*, Avicenne (1900). Renan, E., *Averroès et l'Averroisme*. Laudauer, S., *Die Psychologie des Ibn Sina* (*Zeitschr d. deutschen Morgenländischen Ges.* xxix (i.) [1875]. Haneberg, B., *Zur Erkenntnislehre von Ibn Sina und Albertus Magnus: Abh. d. Philos. Philol. Cl. d. K. Bayer, Akad.*, 1866. On the Brothers of Purity, see Stanley Lane-Poole, *Studies in a Mosque* (1883); also De Boer, Dieterici.

P. 53. Avicenna: text, *Canon Medicinæ*, Venetiis, 1608.

P. 58. Alhazen: *Opticæ Thesaurus*, edit. Risneri, Basil, 1572. Baeumker, C., *Witelo* (Beiträge iii. 2), 225 (for versions of the name, v. p. 227). Siebeck, *A. f. G. Ph.*, ii. de Boer, 148. Bauer, H., *Die Psychologie Alhazens* (Beiträge x. 5).

P. 78. Synderesis: Siebeck, *Gesch.* ii. 414, and *A. f. G. Ph.*, x. (1897). Refs. in Schneider, ii. 488. Klemm (E. tr., 172) recalls the fact that τήρησις was a medical term for observation in the later Middle Ages.

P. 86. On Ireland, see Sandys, i. 438. Alcuin, etc., Mullinger, 47, *passim*. Maurus (i.e. of St. Maur) wrote an Encyclopædia in 22

books: Part vi, Man and his parts (Migne, cvii–cxii). General account, Mullinger, 138 *seq.*

P. 87. Eriugena: general account in Poole, R. L., *Illustrations*; A. Gardner, *Studies in John the Scot.* Mullinger, 172; *Works*, Migne, v. 122. (Maurice, F. D., *Mediæval Philos.*, 55–56: *apud* Mullinger)

P. 89. Gerbert: cp. Sandys, i. 491. Migne, cxxxix.

P. 91. Bernard: Migne, v. De Wulf, 184–6. W. of Conches, composed *Magna de Naturis Philosophia*, *De Philosophia Mundi*, *Dragmaticon Philosophiæ* (in Migne, v. and Cousin, *Œuvres inédites d'Abelard*, 669). De Wulf, 186. Cp. Werner, K. in *Sitzungsb. d. K. Ak. d. W. Phil.-Hist. Cl.*, t. 75, 397, and Soury, i. 348. Abelard: *P. Abaelardi Opera*, ed. Cousin 1849; Cousin, *Œuvres inédites*, 1836. De Rémusat, *Abélard*, 1855.

P. 93. John of Salisbury: Migne, 199: some points made, pp. 436, 646, 875, but chiefly 921–5 (*Metalogicus*, Bk. iv. chap. 8–12). Cp. Siebeck, *Gesch.* Alanus, Migne, *P. L.*, 210. Baumgarten, *Die Phil. des Alanus*, 1896.

P. 95 Hugo: *P. L.*, 175–7. H. Ostler, *Die Psychologie*, etc. (1906). Richard: *P. L.*, 196: Ritter, vii. De Wulf, 218. Isaac: *P. L.*, 194.

P. 101 Alcher: *P. L.*, 40 (cp. Ritter, vii. 590).

P. 104 Gundissalinus: *Schrift v. d. Unsterblichkeit d. Seele*, B. Bülow, 1891. Löwenthal, *Pseudo-Aristotelisches ueber d. Seele*, 1891. Alfredus: *De Motu Cordis*, Barach, *Bibl. Phil. Med. Aet*, ii. (1878).

P. 106 Alex. of Hales: *Summa Theologiæ* is the usual title: 4 vols., Venice, 1575. Cp. Endres, *Philos. Jahrb.*, 1888; Siebeck, *A. f. G. Ph.*, ii.

P. 108. Albert is the subject of an elaborate monograph by A. Schneider=*Beiträge*, iv. 5–6 (1900). (*Beiträge zur Psychologie Alberts d. Grossen*, 2 vols.) Re-issued as *Die Psychologie A. d. G.*, 1903.

P. 113. Though much has been written about Thomas Aquinas, there is little to be said that is not actually in the *Summa Theologiæ*, to which may be added Sertillanges, *S. Thomas d'Aquin* (1912).

P. 117. Cp. especially Rousselot, *Pour l'histoire du problème de l'amour au Moyen Age* (Beiträge vi. 6).

P. 124. John of R. *La summa de anima di Frate Giovanni della Rochelle*, ed. Domenichelli (1882). *Die Psychologie Bonaventuras*, E. Lutz (Beiträge vi. 4–5). Roman de la Rose: the point of this remark will be intelligible to any one who recalls Grosseteste's *Chasteau de l'amour*, which Warton describes as having "the air of a system of divinity written by a troubadour" (*Hist. English Poetry*, ii. 90, ed. 1871).

P. 125. Eckhart: Siebeck, *Program.*

P. 129. Werner, K., *Die Scholastik*, etc. The point about the field of vision may represent Witelo's teaching or a common source: cp. Baeumker, *Witelo*, 185. See D. Scotus, *Op.* 2, 42, 4.

P. 135. On Witelo, the one standard work is by C. Baeumker,

W. ein Philosoph und Naturforscher des XIII Jahrh. (Beiträge iii. 2.) Bacon, R. See *Introduction to the Opus Maius*, by Dr. Bridges (1897): printed separately as *The Life and Work of R. B.*, 1914. Important essays in *Roger Bacon*, essays contributed by various writers: edited by A. G. Little. Oxford, 1914.

P. 144. Paracelsus: See Strunz, F., *Theophrast Paracelsus*, 1903; *Life of P.*, by F. Hartmann (ed. ii, 1896); Rixner and Siber, for other writers of the period.

P. 146. Telesius: cp. Fiorentino, *B. Telesio* (1874); J. L. McIntyre, *B. J. P.*, i. 61.

P. 159. Pomponazzi: Works include *De Immortalitate* (1516), *Apologia, Defensorium, Commentary on Aristotle's De Anima.* This last was discovered in 1876, and printed as *La Psicologia di P. P.*, with Introduction by L. Ferri (Roma, 1877). Cp. Fiorentino, *P. P.* (1868); Douglas, A. H., *Philosophy and Psychology of P. P.* (1910).

P. 164. Cp. Rump, J., *Melancthon's Psychologie* (1897).

P. 165. Cp. Hoppe, G., *Die Ps. des J. L. Vives* (1901); Pade, R., *Die Affectenlehre* (1893); Watson, F., *Vives on Education* (1913).

P. 168. On the subject of this section, see Woodward, W. H., *Education during the Renaissance* (1906).

P. 171. Huarte: English translation made by R. Carew, 1594, from an Italian version by Camillo Camilli: the original written 1557. Huarte's work was translated by Lessing (1752, 1785).

P. 172. See especially Steinitzer, M., Dessoir, 47.

P. 183. "Like as the vulgar logic, which regulates things by the syllogism, pertains not to the natural but all sciences, so ours, which proceeds by induction, embraces them all. For this we would form a history and tables concerning anger, fear, modesty, and the like, as also examples of civil affairs, not omitting the mental emotions of memory, composition, division, judgment, and the rest" (*Novum Organum*, i. 127). For the excellent comments on human intellect, *vide Novum Organum*, i. 38 *seq.*, i. 49. In ii. 27, sensation is nothing but motion of spirits; organs of sense are perforations in "corpore animato ad discursum spiritus animalis in membrum rite dispositum," etc. *De Anima* in general: see *De Aug.*, iv. 3. In *De Aug.*, vii. 1, there is a very significant passage on the social instincts, treated as "attraction" of the part by the whole [cp. Th. Aquinas, as noted p. 121]. Bacon already sees that one affection is only controlled by some other "ruling passion": the *lex naturalis* is social originally.

P. 184. Fuller information on detail may be obtained from W. Wundt, *Beiträge zur Theorie der Sinneswahrnehmung* (1862). Among the more important was F. Aguilonius (*Opticorum Libri Sex*, 1813); but the work is often uncertain in fact and method.

P. 185. On Kepler's philosophical speculations, see [1]Eucken, *Philos. Monatsh.*, 1878, where it is asserted that *Harmonice Mundi*, Bk. iv., chap. ii., anticipates Leibniz's doctrine of unconscious mental processes.

P. 186. For Descartes' views on Light, *vide* Dioptrice, cap. i.,

Opera Philosophica, 1654; *Principia*, iii., Art. 55, 56. Cp. *L'Optique de Malebranche*, by P. Duhem, *R. de M. et M.*, Jan., 1916. (Cp. note to p. 226.)

P. 188. See Strunz, F., *Johann B. van Helmont*, 1907. Foster, Soury, as given in bibliography.

P. 190. On Willis, cp. Foster, 270, etc. Willis wrote *Pathologiæ cerebri et nervosi generis specimen*, 1667; *De Anima Brutorum*, 1672.

P. 193. Vieussens: *Neurographia Universalis*, 1684. Cp. Soury, i. 446.

P. 193. Perrault: cp. Bouillier, F., *Le Principe vital et L'Âme Pensante* (1873).

P. 194. Stahl: cp. Foster, *op. cit.*; Puschmann, Bouillier, *op. cit.*; W. McDougall, *Body and Mind*.

P. 197. Descartes: see A. Koch, *Die Psychologie Descartes* (1881); B. de Saint-Germain, *Descartes considerée comme Physiologiste* (1869). The literature is copious, but mainly devoted to other aspects of Descartes' work. The edition of *Adam and Tannery* (1897) gives the material, also the *Opera Philosophica* (1654) has been used for reference. Eng. trans., Haldane and Ross, 1911. For details of biography, etc., see Ch. Adam, supplement to work named above. Also Kuno Fischer, *Gesch. d. neueren Philosophie*, i. (Eng. trans., *Descartes and his School*).

P. 200. Typical passages are *Ep.*, ii. 116 (Cousin, ix., 104): "Me nullas in natura qualitates reales supponere, quæ substantiæ tribuantur, tanquam animulæ quædam corporibus suis." *Tract. de hom.*, v. 105: "Necesse non sit ullam aliam in ipsa concipere vegetativam vel sensitivam Animam," etc. For proof of purely physical action, Descartes quotes convulsions, *Ep.*, i. 67 (Cousin, x. 106). Such motions occur *absque ulla cogitatione*, so that we can speak of *machinamentum corporis*.

P. 205. Herbart (*Werke*, v. 212) remarks that Descartes' views on innate ideas were moderate and justifiable at that time; he quotes the *Nota in programma quoddam in Belgio editum*. Cp. also the statement: "I have neither written nor held that the mind is in need of innate ideas which are anything different from its faculty of thinking" (quoted Adamson, R., *Development of Modern Philosophy*, i. 38=Op. 1654, p. 184 [*Nota in articulo*, 12]).

P. 212. Stoic terms, e.g., *Pr. Phil.*, i. 39; *Ep.*, i. 35 ("soul is emanationem quandam et divinæ quasi particulam auræ").

P. 214. See, e.g., *Ep.*, i. 85, p. 258 (Cousin, vii. 518): "Non admitto vim vegetandi et sentiendi in brutis mereri animæ appellationem ut mens illa meretur in homine," etc. In i. 67: *Anima corporea* is used for lower functions; but in *Pass.*, i. 17, only *pensées* belong to *notre âme*.

P. 215. See W. A. J. Meyer, *Descartes' Entwickelung in der Erklärung d. Tierischen Lebenserscheinungen* (1907). Rorarius=Girolamo Rorario, a jurist: the book, *Quod animalia bruta sæpe ratione utantur melius homine*, was not printed till 1645; it is cited by Leibniz. The references to Paracelsus come from Bendyshe, "History

of Anthropology," in *Anthropological Society's Papers*, Series i. (1865). For witty remarks on this controversy see Bayle, *Dict. sub Rorarius, Pardies*, etc. Cp. Steinitzer.

P. 219. Cp. Croom Robertson, *Hobbes*: Tönnies, *Hobbes Leben und Lehre* (1896).

P. 226. Material is taken from *De la recherche de la verité* (1674) chiefly. For details of scientific work *vide Duhem* (note to p. 186); on vibration and colours, *Mémoires de l'Academie des Sciences*, 1699, p. 22 (Lechalas, *Rev. Philos.*, xviii. 293). The remarkable passage in *Recherche*, v. 3, runs thus: "There are nerves which surround the arteries. At an unexpected sight of an object, when it is fitting to change the course of the spirits, the agitation of the brain sends the spirits to these nerves to close by contraction the passage (of the blood) to the brain, and open the passage to other parts." Cp. Scury, p. 407. Lange calls this augmentation of vasomotor innervation and constriction of arteries (*Ueber Gemüthsbewegungen* tr. Kurella, 1887, note 22, p. 89).

P. 233. Spinoza: Literature is copious: special use has been made of the article by O. Baensch in *Ast's Grosse Denker*. Cp. also Joachim, *Study of Spinoza's Ethics*. The description of the Passions given in the earlier sketch (*Short Treatise on God, Man, and his Well-being*) is different. See *Short Treatise*, iv., etc., by A. Wolf, 1910.

P. 247. Cp. in general Adamson, J. W., *Pioneers of Modern Education in the Seventeenth Century*.

P. 257. Locke: see Fraser, A. C., *Locke* (1901), for general account. The relation of Locke to medical science is well shown by Sir W. Osler in *An Alabama Student*, p. 68, etc. Cp. *Locke and Sydenham*, by Dr. John Brown (*Horæ Subsecivæ*, I).

P. 264. Berkeley: Fraser, A. C., *Berkeley* (1890); Ferrier, D., *Philosophical Remains*, vol. ii; Grote, J., *Exploratio Philosophica* (1900), vol. ii, 117.

P. 271. On Hume see Huxley's *Hume* in *English Men of Letters* series for general account.

P. 278. Hartley's life and work in Bower, S; *Hartley and J. Mill* (1881); main points of theory in Ribot, *English Psychology*; also L. Ferri.

P. 289. Cp. L. Ducros, *Diderot* (1894); *Œuvres*, tome i. (1875).

P. 290. Condillac: *Essai sur l'Origine des Connaissances humaines*, 1746. For psychology the *Traité des Sensations* (1754) is most important. The *Traité des Animaux* had some influence on the study of animal behaviour.

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P. 301. Leibniz: for general account, *vide* T. Merz, *Leibniz* (1884): for psychology, Dessoir (*a*).

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P. 316. The detail of this period has, so far as I know, been

attacked only by Dessoir (*a*) and Sommer. Of the general histories, Erdmann here has superiority.

P. 328. Tetens: survey by W. Uebele, *Kantstudien*, 1911 (Erganzungsheft, 24). Notices in Dessoir, Sommer.

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P. 381. Inner man, quoted by Cabanis from Sydenham (*Rapports*, *III^e Mémoire*).

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