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trayal, in the circumstances, to allude further to this outlet.

The order which by nature he knew to be necessary determined all the things he did for his own satisfaction. He **was** as punctual as a lay-sister in his religious duties, If he could be said to have studied anything, the subjects were plant-life, mathematics, physiology.

As a rest from his own 'position' he put himself in the 'position' of others. His confidants had to hear without a smile that he had, say, presented a nun with a wheelbarrow. When a driver, **to** show affection for him, drove him, quite against his wishes, with desperate speed, he might say: 'It's all right, **so** long **as** he doesn't loop the loop.'

JOHN GRAY.

A HUNDRED YEARS OF PSYCHOLOGY

IN comparison with such sciences as Chemistry, Physics or Physiology, which have acquired a certain stability of doctrine and method, Psychology at the present day appears to have little of either of these characters; an excuse is often made to the effect that psychology is still one of the younger sciences, and has not as yet quite found a firm footing. The truth is that there are no clear-cut generally-accepted principles governing either the subject matter or methods of this science, as may be seen **by** consulting various text-books or that interesting volume of essays, *Psychologies of 1930*. Psychology may perhaps be considered young **as** an experimental science, but in regard to a part at least of its **sub**ject, it is about as old **as** any enquiry one can think of, for man has always been interested in man. Speculation on the existence and nature of 'Soul,' of mind, of thinking, of appetite, of character and conduct, reaches back to the centuries B.C., when Greek Philosophy was at its highest and best in the writings of Plato and Aristotle. These are subjects with which psychology to-day is still concerned, but having lost contact with the ancient philosophy it has also lost a great deal of coherence.

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It is this perhaps that accounts for the vagueness in the usage of the word 'psychology' to-day. But this very vagueness has certain advantages which must not be under-estimated, since it provides an incentive to research, and to scientific, that is to say methodical, investigation of the problems presented by human nature. It means too that in addition to the valuable doctrines of the metaphysicians concerning the nature of man, there is a field in which not nietaphysical reasoning **so** much as observation and co-ordination of psychological phenomena and their immediate causes and condition is required. This it is that specifically characterizes modern psychology. Human nature presents so many aspects and faces, that investigators are forced to make selections, and are often led to take up stand-points in regard to psychology as a whole.

The historical development of this science has been underaken of late years by various writers, (1) among the latest of whom is Dr. J. C. Flugel, whose book entitled **A Hundred Years of Psychology** is the occasion of this present essay. Mr. Brett's work embraces the whole of psychology from the earliest times to the present day. Mr. Murphy begins with the 17th Century. while Dr. Flugel starts **from** the year 1833, and traces the development of this science down to the present day. Taking psychology **as** a whole, we see that it has passed through three main stages, metaphysical, empirical, and experimental, to reach in the end a stage in which all three are rather indeterminately mingled, so that the results lack the clearness of contour which the science seemed in its earlier phase to present to the student.

There is great need to-day for some unifying principle, and that, we would assert, could be found even in an experimental basis in that conception of man's essential nature which was first clearly defined by Aristotle, and still more clearly in the thirteenth century by St. Thomas Aquinas. **A**

¹ G. S. Brett, *History of Psychology*, 1921 3 Vols. Gardner Murphy, *An Historical Introduction to Modern Psychology*, 1929. Edwin G. Boring, *A History of Experimental Psychology*, 1929. R. S. Woodworth, *Contemporary Schools of Psychology*. J. C. Flugel, *A Hundred Years of Psychology*, 1933.

sound experimental science of psychological phenomena **stands** in no opposition whatsoever to such fundamental **principles**, even if in the pursuit of its own object in its **own** way, it has less occasion to refer, or to make use of these, as explanatory principles. Unhappily however for both metaphysics and science alike, philosophers and scientists have drifted apart, and tend to view each other's fields through the telescope, if they consider each other at all.

We cannot stay to discuss how or when this separation of philosophical from scientific psychology took place; it was not a sudden rupture, but rather the outcome of the general development of knowledge from the thirteenth century onward. Philosophy looks to the essential and the universal in human nature, which displays itself in a multiplicity of modes of behaviour, actions and reactions, feelings and passions. Scientific psychology having fastened *it*-self to the investigation of this multiplicity or manifoldness of human nature, and neglected the underlying unity, has we might say got lost, not exactly in a fog but in the intricacies of a maze, and a maze as a problem can be attacked in two ways, proceeding from without to try to reach the centre, or proceeding from the centre to try to find a way out. The present day student of psychology might be compared to a person dumped down at any point in the maze and told to find the way in or out as best as he can.

But here let it be said before proceeding to our task that it is not within the province of the scientific psychologist as such to seek to reduce this manifold of human activity to any unitary principle, his task is to investigate the phenomena as he may find them; it *is* rather to the philosopher we must turn for guidance in regard to ultimate meanings and fundamental causes. Psychology to be complete needs therefore the co-operation of the philosopher and scientist.

The hundred years of psychology under present consideration are divided by Dr. Flugel into three periods, first from the year 1833 to 1860, from then on to the beginning of this century, and **so** to the present day. Whilst each

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period has its own characteristics there is continuity of development, giving rise gradually to divergent trends of thought and method. The first period will not detain us long, Psychology was then still in the empirical stage; the method though based on experience and observation, had not as yet reached a definitely experimental stage. It is true that the German philosopher and educationalist, Herbart, in the early part of the nineteenth century had formed some conception of a scientific psychology on a basis of metaphysics and mathematics, though his main interests lay in education, over which he exercised an influence which has not quite disappeared even to-day. This was an active period as regards educational theory, in which the leading idea was to develop the natural capacities of the child or pupil, instead of looking upon him merely as a receptacle of information. The names of Rousseau, Pestalozzi, and Froebel, are familiar in this connection. Educational methods such as those of Mme. Montessori in use to-day are imbued with this idea of Herbart.

Empirical psychology at this time was in the main dominated by the doctrine of association of ideas, and chiefly concerned with the problem of knowledge. It was almost entirely an intellectualist psychology. We shall see more clearly later what this implies. We have now to take note of certain side currents of investigation, particularly in the domain of physiology, to which eventually experimental psychology owes its inception.

Important discoveries were made by Charles Bell of Edinburgh about the way in which nervous impulses reached and passed out of the spinal cord. Waller, by a special technique, discovered that nerve fibres separated from the cell of their origin gradually degenerated, and by certain ways of colouring or staining the tissues could follow the path of degeneration, thus opening up a new method of studying the anatomy of the nervous system. In other quarters, phrenology, a popular but fallacious theory, propounded first by Gall and taken up later by Spurzheim, contributed indirectly to a further and more scientific study of the brain. Phrenologists sought to demonstrate

that there existed a definite and tangible relation between areas of the brain and psychological faculties or functions. The appropriate and corresponding brain areas could, it was thought, be detected by protuberances, or bosses on the skull, and soon the anatomical head was exhibited, and is still to be seen to-day, on which man's various proclivities are duly labelled. This was of course nonsensical, but it achieved, and in certain quarters to-day maintains, a certain popularity. It had, however, scarcely any real scientific foundation.

Later experimental research did, however, succeed in discovering quite positively that certain specified areas of the brain corresponded with specified motor and sensory functions. Thus a lobe at the back of the brain is found to be connected with sight. another, just above the ear at the side of the brain, with hearing and speech, and it is quite probable, though it has not been definitely shown, that as Aristotle believed there is an area corresponding to that psychological faculty of combining particular perceptions into a whole, known as the 'Common Sense.' These results were reached partly by the observation of the effects produced on the senses and on speech by injuries to the brain, partly by experimental methods of electrically stimulating different regions of the grey matter in the cortex of the brain, and noting the results. Partial removal, also, of certain regions of the brain, confirmed physiologists in their belief that psychological functions, as well as muscular movements were controlled by, and associated with, definite areas of the brain. The doctrine known as the Localisation of Cerebral Functions, appeared to have been solidly established, though in its present form it is much modified.

The psychological importance of these studies on the brain lies in the problem of the relation to the body—in particular of the brain and nervous systems—to the mind, which had already interested Descartes. Leibniz, and others, and to-day still remains very much of a problem, notably concerning the causes of mental deficiency or feeble-mindedness and insanity.

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In the meantime, whilst these researches on the brain were being pursued, the mind-body problem was approached from another direction, that of the study of sensation. The German physiologist E. H. Weber, sought to discover the quantitative relation obtaining between an external sensory stimulus and its sensory perception. There are various ways of estimating this relation. A simple way is by means of weights of different values, which really set up sensations of pressure on the skin, or internal muscular, or 'kinaesthetic,' sensations. We may hold a given weight and then have it gradually increased till we notice an increase. Or we may start with some stimulus which when applied is not noticed or perceived till its intensity is increased to a certain point. The first perception of a stimulus, or the first perception of a difference in the stimulus, were called 'thresholds of stimulation' or 'differential thresholds.' Weber discovered that some definite law did obtain between the quantity or amount of stimulus, and the difference of two stimuli and the perception of them.

To Weber belongs the credit of laying the foundations of an experimental psychology, to be developed later by Fechner and Wundt. Fechner was deeply interested in the 'Philosophy of Nature' so prevalent in Germany at this time, 'a philosophy imbued with its belief in spirit expressing itself through physical symbols, and in the realization of values not found in the mechanical world' (Gardner Murphy). 'How can quantitative science teach us,' asked Fechner, 'to study the human spirit in its relation to the universe?'

There seems to have been a conflict in Fechner's mind between the claims of a quantitative science, and those of the spirit, a conflict always present in some degree. But as Mr. Murphy points out, Fechner, by a curious contradiction was at once both a follower of the philosophy of nature and one of its most ardent opponents. Satirizing mechanistic science in a series of writings under the name of Dr Mises, he seems eventually to have discovered that the way of reconciliation between spirit and matter was to be found in the quantitative relation between the sensory

stimulus and the sensation.

Though a contemporary and neighbour of Weber, Fechner seems to have reached this conclusion independently, only becoming acquainted subsequently with the work of Weber which provided him with a technique of investigation that he elaborated and extended, modifying in another formula the law stated by Weber. He solved the philosophical problem concerning mind and matter by identifying them in a theory of idealistic Monism, expounded in a work bearing the title *Zend Avesta*. Fechner's experimental work was published later in 1860 under the title of *Elements of Psychophysics*.² This date is usually taken to mark the birth of experimental psychology.

We can now take a glance at the kindred science of psychiatry, which deals with abnormal mental conditions. It is comparatively of recent date that psychology has gained admittance to this field, investigating causes and suggesting new methods of treatment.

Mental abnormality may be roughly divided into three classes. The psychoses, usually known as insanity; mental deficiency, including feeble-mindedness, imbecility, and idiocy; and finally the less well-defined group of mental disorders to which the term psycho-neurosis has been given.

Abnormal states of this nature had been recognized more or less clearly from early times. As far back indeed as the reign of Edward I, the distinction was made between the 'born fool' or idiot (*fatuus naturalis*) and the lunatic or person who 'hath had understanding, but by disease, grief or other accident hath lost the use of his reason.'³ In later days, however, insanity came to be looked on almost as a crime, the afflicted being treated even worse than criminals. The first step forward was taken by the French psychologist Pinel, who in 1792 became director of the hospital for the insane in Paris, the Bicêtre. Pinel opposed the current belief concerning insanity, insisting that 'the insane are sick, not wicked.' It was generally thought at this time that

² *Die Elemente der Psychophysik*.

³ Lionel S. Penrose, *Mental Defect*.

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the insane were possessed by evil spirits. An attempt was made to discriminate and classify mental disorders, in which Pinel's endeavours were later improved on by Esquirol, Moreau de Tours. and others.

The humanitarian movement soon spread far and wide, and in the United States was greatly promoted by the labours of Dorothea Dix, in the State of Massachusetts and elsewhere. In the main, the study of mental disorder was limited to discrimination and classification with increasing refinements, though 'there was no general recognition among physicians that normal psychology had anything to offer, and no recognition among psychologists that mental disorder could teach them anything' (Gardner Murphy). It is now, however, coming to be recognised more fully that both normal and abnormal psychology are interdependent branches of the study of the human mind and behaviour, in which each can learn from the other.

Pinel was one of the first to suspect the existence of intrinsic mental defect in certain individuals, thereby rendering them incapable of normal education and instruction. At the beginning of the nineteenth century, Itard undertook the care of a 'wild boy' of about ten years of age, who had been discovered in a wood near Aveyron in France. He was not very successful and Pinel suggested that the failure might be accounted for by the intrinsic incapacity of the lad. Itard was joined by a young man named Seguin, who later became the real pioneer in the training of the mentally deficient. He recognized the uselessness of ordinary methods of teaching, and set about devising methods of his own, with the idea of bringing out such capacities as these individuals possessed. Seguin eventually went to America to help Dr Samuel Howe in Boston, a special institution being soon founded for the training of defectives. Seguin also devised certain 'tests' for estimating the degree of intelligence of such individuals. Within the last forty years other tests have been devised and standardized, which are now in wide use.

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(To be continued)