In conclusion, and at the risk of having you feel that I am throwing bouquets my way—which I am—I quote a paragraph from a letter received from the Director of the Smithsonian, Mr. Hopkins, after the acceptance of the model. "I wish to extend our appreciation to you, and thank you for your painstaking research, your intelligent interpretations, your excellent craftsmanship, and the devoted personal interest you exerted in every detail of this project leading to the gift to the National Collection. We are pleased to receive this very fine model whereby we can *accredit* the *far-sighted* aeronautical concept of *one* of the World's *great philosophers* and *theologians.*"

A GENERAL SURVEY OF PSYCHOLOGY

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Every area of science today is divided into specialized fields. As psychology includes many branches of study, it is impossible to find an all-embracing definition of it. "The science of mind" is the most universal, and probably the oldest, definition. It is necessary, however, to look carefully at the terms "science" and "mind" if this definition is to be understood.

Although its subject matter is very different from that of the natural sciences, psychology is classified as a science because its subject matter is obtained and interpreted by scientific methods. Nothing is accepted as evidence which cannot be observed and measured.

This immediately limits the psychologist's definition of mind to those attributes of the mind which can be observed and measured. For this reason, psychology and physiology are closely connected—mind is regarded as the product of evolution; thoughts and impulses as the products of brain processes. They are so closely connected that modern psychology is often classified as a biological science. "Modern psychology has definitely emancipated itself from philosophy and firmly taken its place in the framework of the biological sciences."[1] In the early development of psychology, there were

[1] Zangwill, O. L. *An Introduction to Modern Psychology.* Methuen & Co.: London. 1957. p. 19.

attempts to devise a pure psychology of mind, separated from any physiological connections. But mental activity is always accompanied by physical activity; the close parallelism between mental and physical processes has led to the belief that there is no essential difference between the two. As a result, a biological approach to the study of mind has developed. Psychology therefore is really the study of behavior, and the aim of psychology may be said to be to predict and control behavior.

This approach to mental life reached its extreme in the behaviorist school which swept American psychology in the nineteen-twenties. The name most closely associated with this school is that of John B. Watson, who represents its most radical views. In its pure form, behaviorism maintains that all mental phenomena must be reduced to movement if they are to be studied. This reduces all psychology to the study of the movements of muscles and glands, which the behaviorists claim is the only scientific form of psychology. Behaviorism relies heavily on physiological studies in order to find what organic movements take place upon the slightest change in the environment of an organism. For example, bodily changes take place when an object is perceived that is said to cause an emotion. These changes are observed and measured. They *are* the emotion, *i.e.*, emotions are glandular reactions, and it is therefore possible to predict and control them at will.

Behavior is considered to be nothing more than a very complex set of conditioned reflexes. The concept of the conditioned reflex is the core of the behaviorist movement. Watson guaranteed to make out of any healthy infant a specialist in anything from medicine to burglary, regardless of his tendencies or abilities. In its most extreme form, behaviorism excludes everything which cannot be described in terms of organic responses. Everything is expressed in terms of physical responses: sensation is neural response; emotion is glandular response; memory is neural habit.

Behaviorism failed to do more than state the physical manifestations of mental states. It was bound to fail, and although it dominated American psychology for a while, there are today few, if any, psychologists who may be termed behaviorists in the strict sense of that term.

One of the causes of the development of behaviorism was the

great advance in the study of animal psychology. This is the study of the behavior of animals in order to measure their mentality, and in order to throw light on the development of the human mind and on human instincts and impulses. Animal behavior has been studied for centuries, but it became a part of psychology after the work of Darwin had emphasized the comparative study of human and animal behavior. A tremendous amount of experimental evidence, covering everything from the amoeba to the chimpanzee, has been collected in this field. The majority of the experiments have been directed at the question of learning, *e.g.* the use of the maze. It is hoped that animal psychology can elucidate many problems of human psychology, for man is a mammal, and in order to see him in biological perspective it is necessary to examine more primitive forms of behavior. Comparative psychology is essential, for there are many problems which for ethical and practical reasons cannot be investigated in man.

The individual is considered to be the outcome of the constant interaction between himself and his environment. The most important aspects of interaction are learning, perception and motivation. Studies in the field of learning are extensive, for there is a wide field of material with which to work. Not only does each individual perceive things differently, but different cultures form different ways of doing things. Perception, the process of turning everything we see and hear into something meaningful, also varies greatly from individual to individual, and from culture to culture.

The branch of psychology known as psychophysics has developed around these processes. It is concerned with quantitative relations between stimuli and responses. Psychophysics began in the time of Fechner (1860); he attempted to relate the spiritual to the material world by measuring sensation in relation to its stimulus. He sought a quantitative expression of the mind-body relationship. It is interesting to note that Fechner came to the conclusion that there was only one world—the spiritual. "Only a threshold separates this life from the next, and the threshold that separates imperceptibility from perception, and ideas not in consciousness from those in the fovea of attention is the same in kind as that which separates existence here from that beyond the grave. Indeed there is no separation in either case, but only an unbroken continuum. There is no real death, but something psychic wherever

there is matter or energy. Matter is not extinct but only sleeping, dreaming mind." [2]

Weber's Law is an example of the type of work done in psychophysics. Weber found that a stimulus must be increased by a constant fraction of its value in order to be noticeably different. The greater the value of the stimulus, the greater must be the increment for the difference to be felt. Today there is little interest in these psychophysical laws as such; they are important only because they showed that problems in psychology can be subjected to quantitative methods. We see today the wide use of mental tests, educational tests, and statistical methods in the study of human behavior. In many cases, however, they have done no more than to obtain what the psychologist termed a quantitative expression for the obvious.

Psychophysics deals with several aspects of the interaction between the individual and his physical environment. Social psychology is concerned with the interaction of the individual with his social environment. It is an attempt to understand how the thought, feelings and behavior of individuals are influenced by the presence of others. It is a young branch of psychology and therefore relatively undeveloped. It deals with subjects such as status and role, group mind, prejudice, communication, leadership, the analysis of political organization, and the nature of the modern state.

Child psychology is the most modern branch of psychology. It is really a study of human *behavior* from birth onwards. The reactions of the infant and child are carefully studied, for example, weaning, walking, speech and the behavior of children in different atmospheres. There are two main approaches to the study of personality development. One is to take a particular aspect of personality and trace it through different life stages. The other is to take the total personality or a particular aspect, and trace it through the life of the same individual. As yet, there is very little stable theory in this field; it consists mostly of reports and measurements of behavior.

The study of personality is only one branch of psychology, but it is what most people think of when psychology is mentioned.

[2] Hall, G. Stanley. *Founders of Modern Psychology.* D. Appleton & Co.: New York. 1912. p. 172.

Here the theories of Freud have had the greatest impact. Freud was the founder of psychoanalysis, a therapeutic procedure which interprets mental disorders by tracing their most fundamental causes in the life of the individual. The theory rests on the principle that there is an unconscious side to mental life which has a profound effect on mental states. The Id, the Ego and the Superego are involved here. The two basic impulses are the aggressive and the sexual. Through external pressures in infancy and childhood, the individual learns to repress and control these Id impulses in order to conform to acceptable standards. If repression is excessive, various forms of neuroses and hysteria may arise. These unconscious factors must be brought out into the open, and this is done through dream interpretation and free association. In dreams, the unconscious manifests itself freely, because conscious Ego control is withdrawn. When the patient is able to realize the real nature of this inner life, he can be helped to reconstruct his life along healthy and useful lines.

Psychology has been defined as the science of mind. The growth of scientific methods of investigation has enabled psychologists to study in great detail the delicate activity of the brain, and many of them believe that all mental phenomena may be explained in terms of the neural and electrical activities of the brain. However, they have to admit that the "manifold causes and connections still baffle the supremest efforts of expert enquirers." [3] Stimuli which we receive from the external world can be measured; so can responses to these stimuli. But the mental activity which occurs between these two phenomena belongs to the spiritual world, and cannot be observed or measured. According to New Church philosophy, it is the soul that enables us to sensate, perceive and understand. Consciousness arises from the meeting of internal and external sensations. Most modern psychologists disregard the idea of soul entirely. Professor Holt has this to say: "The prophetic quality of thought which makes it seem that it is the hidden and inner secret of conduct, is due to the fact that thought is the preceding labile interplay of motor settings which goes on almost constantly and which differs from overt conduct in that the energy involved is too small to produce gross bodily movements. . . . Now in this

[3] Robinson, E. S. *Readings in General Psychology.* University of Chicago Press: Chicago. 1929. p. 14.

wish or function we have the pure essence of the human will and of the soul itself." [4] Despite this assertion, psychology still has no knowledge of the mind itself; it has only observed the external manifestations of mental functions. If we are to discover the mind itself, we must "step out of the realm of science into that of philosophy and revelation." [5] Only the Lord can teach us about spiritual causes.

The scientific method in psychology has yielded a great deal of valuable knowledge about human behavior. But it has also been the greatest stumbling block to the development of a true understanding of it. No matter how vast the accumulation of facts, they are worthless unless they are properly ordered. There must be theories which give meaning to the facts, and I believe that psychological theories today are necessarily inadequate to explain the facts because there is no consideration of spiritual forces and spiritual causes. Psychologists have no central point to which to refer their findings, and no principles by which to order them. To get a true picture of mind we must recognize both the spiritual and natural foundations of truth, and order the latter by the truths of the Word. Man can find no greater treatise on the human mind than the Writings, where we have a vision of the mind in the image and likeness of God. "The New Church regards the human mind as an organism created to live to eternity. It postulates that the mind is a double organism, adapted for life in two distinct worlds . . . and to serve as the sole medium of conjunction between them; that is, it lives in both worlds at the same time, and is affected by active forces both spiritual and natural. A philosophy which recognizes only the natural or physical activities of the mind is bound to lead to an inadequate understanding of its operations, and to a misinterpretation of many observed mental phenomena." [6]

[4] Tansley, A. G. *The New Psychology.* Dodd, Mead & Co.: New York. 1921. p. 20.

[5] de Charms, George. *The Growth of the Mind.* Academy Book Room: Bryn Athyn. 1953. p. 6.

[6] *Ibid.* p. xiv.