DISCUSSION

ONE SET OF POSTULATES FOR A BEHAVIORISTIC PSYCHOLOGY¹

Why should the fundamental principles of psychology be reformulated?

PHENOMENOLOGICAL AMBIGUITY

The categories, mind, consciousness, awareness, purpose, volition, sensation, image, feeling, etc., have failed to establish the degree of phenomenological specificity which is essential for a uniform program of scientific investigation. If a group of psychologists were asked to define, describe, and explain what they understand by the term consciousness or mental, the reports would show such divergences that a scientific quantification would be impossible. This lack of agreement is increasing rather than decreasing.

DUALISM *versus* MONISM

The antecedents of traditional psychological phenomena cannot be compared with, and causally related to, the ontogenetic, phylogenetic, and evolutionary antecedents of natural science phenomena. If we ask, what are the evolutionary antecedents of the mental states of redness, of sourness, of pleasantness, and then postulate some measureable physiological condition as a correlate to the mental state, we actually reduce mental evolution to physiological evolution, thus raising the question as to the scientific expediency of assuming a mental series at all. To explain human achievement we do not need *both* a mental and a physical system.

MENTAL PROCESSES ARE NOT THE ANTECEDENTS OF SOCIAL ACHIEVEMENT

The traditional psychological categories have not been integrated into the phenomenological series of events and objects which constitute human achievement and civilization as represented by the educational, vocational, administrative, recreational, and personal activities of the individual, or as represented by the corresponding social institutions. Even supposing it to be possible to secure a

¹ Presented before the Section of Psychology of the British Association for the Advancement of Science, Toronto, August, 1924.

comprehensive record and description of the so-called mental states or mental processes of any given individual from birth to death, such a record is not a record of the antecedents of those actions nor of the social effects of those actions which represent individual or social achievement.

THE CONDITIONS FOR A REFORMULATION

I assume that a reformulation of the psychological postulates is justified if it achieves a greater measure of agreement as to their phenomenological limits; if it establishes a methodology which replaces the mind-body dualism by a systematic monism based on the assumptions of the physical sciences; and if the psychological elements that are adopted form the antecedents and components of individual conduct or behavior, and of social achievement or civilization. The problem of reformulation is not so much one of the accuracy of observation and measurement, as it is one of classification.

THE POSTULATES

In the set of postulates which follow, human behavior and social achievement are assumed to be forms of motion. It is not expected that there will be complete agreement on the propositions which are given in support of these assumptions, but it is expected that the phenomenological limits to which these propositions refer can be more uniformly established than can correlative propositions referring to psychical or mental phenomena. In other words, it is easier to agree on the properties of an electron or the nature of motion, than on the properties of a mental state or process.

1. *Electrons and Protons*

The universe is the sum of the movements of its fundamental elements, the electrons and protons. The electron is defined as the smallest unit of negative electricity and the *mobile* constituent of the atom. The proton is defined as the smallest unit of positive electricity and the *stable* constituent of the atom.

2. *Direction and Rate*

If the electrons are regarded as negative in sign and the protons as positive in sign, (a) the *direction* of the movements between electrons and protons conforms to the proposition that unlike signed particles move toward each other, and like signed particles move away from each other; (b) the *rate* of motion being an inverse function of the squares of the distances between the particles.

3. *Stability and Form*

The operation of the laws of *direction* and *rate* exclude, so far as mathematical theory indicates, the possibility of utter condensation, or utter dispersion, or of permanent stability (zero motion) of all the particles. As a result, limited aggregates of electrons and protons form motion groups of varying symmetries, configurations, and degrees of stability, ranging from the relatively simple movements in the neutral hydrogen atom, made up of one electron and one proton, to that degree of geometrical complexity represented by such aggregates as the earth, planets, stars, and the objects and events occurring on them.

4. *Organization*

Electron-proton aggregates form various types or categories of interacting dynamic systems which under the present physical conditions on the earth are evolving into organizations of increasing complexity with respect to the number of electron-proton systems involved and with respect to the variety in the forms of the resultant movements.

Free electrons and protons evolve into the atomic type of organization, atoms evolve into the molecular type, molecules into the crystalline type, on the one hand, and into the protoplasmic type, on the other. The protoplasms evolve into the unicellular form of organization, and the single cells into the multicellular or organismic type. These in turn evolve into the *compound* multicellular or social type of organization. The totality of these dynamic electron-proton interactions forms the cosmos or the movement continuum.

5. *The Individual*

The individual is a locus in the movement continuum and the movements within this locus are correlational functions (in the mathematical sense) of all the movements that are occurring in the electron-proton organizations *not* within the locus. More specifically, the human individual is defined as a locus in the movement continuum, constituting a relatively permanent electron-proton aggregate (the atoms, molecules, and tissues of the body) interacting with the electron-proton systems not within the body, to form the series of energy interchanges designated as the life processes of nutrition, reproduction, and adjustment.

6. Behavior

The sensori-motor and contractile effects which make up the language mechanism of the individual represents both a stimulus and a response system that exhibits a high degree of correlation with spatially and temporally remote environmental changes, and through which the movements of the individual become relatively independent of the non-language environment. The language mechanism forms the characteristic factor in human behavior.

7. Group Behavior

The totality of the language responses and the language records of a group approach as a limit the mathematical conception of unit functional correlation between the linguistic achievements of a group and all the changes that have occurred or are occurring in the movement continuum. In the individual a restricted sensory range, faulty inheritance, restrictive food and shelter activities, wasteful competition, disease, and death, limit this unit correlation to a finite value which is less than that of the group as a whole.

8. Social Organization

The language responses establish the compound multicellular or social type of organization in which there is sensori-motor interchangeability among individuals and within this social organization the individual approaches more closely the hypothetical condition of unlimited sensory range, perpetual youth, immunity against disease, the best inheritance, unlimited physical strength, and unfailing food and shelter resources. The organization as a whole exhibits such a complexity and variety of movements that it approaches more closely than does any individual in it, to a hypothetical limit which may be characterized as omnipotent, omnipresent, and omniscient.

9. Civilization

The sensori-motor interchanges among the individuals of a social organization develop institutions such as the industries, transportation, law, science, medicine, and education, which increase the variety in the behavior of the individual and reduce the limitations imposed by a restricted sensory range, faulty inheritance, restrictive food and shelter activities, disease, and death. Civilization is the cumulative effect of the behavior of the individuals in a group, toward achieving for the individual, unit correlation between

the totality of the electron-proton movements outside the locus of movements defined as the individual, and some function (such as the language responses) within the locus.

10. *Methodology*

The study of human behavior and human achievement is a study of the educational, vocational, administrative, recreational, and personal categories of movements. Any given adult activity is the terminal of two series of antecedents: (a) an ontogenetic series which traces backward through the sensori-motor modifications of the activity to some infantile form of movement; (b) a phylogenetic series which traces backward through the social or institutional modifications of the activity to some primitive social form. The *methods* of study are those of biology, anthropology, social statistics, and a special behavioristic method in which the individual's responses are analyzed into those physiological and social components which form the basis of those movements that establish the individual's social status in the group of which he is a member, and of those movements which establish the cultural or anthropological status of the group.

ALBERT P. WEISS

OHIO STATE UNIVERSITY