

PSYCHOLOGY: A PRESCRIPTIVE SCIENCE¹

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IN a recent analysis of the dynamics of the history of the older, more mature sciences Kuhn (1962, 1963) holds that each of them has reached the level of guidance by a paradigm. In one of its meanings a paradigm is a contentual model, universally accepted by practitioners of a science at a particular temporal period in its development. With this agreement among its practitioners, the paradigm defines the science in which it operates. In a science where a paradigm prevails, one recognizes that a particular paradigm concerns chemistry, astronomy, physics, or the biological science. Illustrative in astronomy is the Ptolemaic paradigm which gave way to the Copernican paradigm, and in physics is the Aristotelian paradigm which gave way to the Newtonian dynamic paradigm, which, in the relatively recent past, was superseded by the paradigm provided by Einstein and Bohr. The great events of science which occur when a new paradigm emerges Kuhn calls a revolution.

The historical sequence Kuhn holds to be as follows: As scientists go about the tasks of normal science, eventually an anomaly, i.e., a research finding, which does not fit the prevailing paradigm, is obtained. A normal science problem that ought to be solvable by the prevailing procedures refuses to fit into the paradigm or a piece of equipment designed for normal research fails to perform in the anticipated manner. Failures in science to find the results predicted in most instances are the result of lack of skill of the scientist. They do not call into question the rules of the game, i.e., the paradigm, that the scientist is following. Reiterated efforts generally bear out this commitment to the accepted paradigm that Kuhn calls a dogmatism. Only repeated failure by increasing numbers of scientists results in questioning the paradigm which, in turn, results in a "crisis"

(Kuhn, 1963). The state of Ptolemaic astronomy was a recognized scandal before Copernicus proposed a basic change, Galileo's contribution arose from recognized difficulties with medieval views, Lavoisier's new chemistry was the product of anomalies created both by the proliferation of new gases found and the first quantitative studies of weight relations. When the revealed anomaly no longer can be ignored, there begin the extraordinary investigations that lead to a scientific revolution. After sufficient acceptance of this anomaly is achieved from the other workers in the field, a new paradigm takes the place of the one overthrown and a period of normal science begins. Since a paradigm is sufficiently open-ended it provides a host of problems still unsolved. In this period of normal science the task of the scientist is to fill out the details of the paradigm to determine what facts, perhaps already known, that may be related to the theory, to determine what facts are significant for it, to extend to other situations, and in general to articulate the paradigm. In short, it would appear that the activities of normal science are a form of "working through" in a manner somewhat akin to that task which occupies so much time in psychoanalytic psychotherapy.

When a new anomaly appears and is given support, the cycle then repeats.

The bulk of Kuhn's monograph is taken up with a historical account of the events leading up to scientific revolutions, the nature of these revolutions, and the paradigmatic developments thereafter, with many familiar facts of the history of astronomy, physics, and chemistry cast in this particular perspective. It is here that the persuasiveness of his point of view is to be found. The test of the correctness of Kuhn's views rests upon the fit of his data with the available historical materials. Kuhn uses the key concept of paradigm in several degrees of breadth other than contentually defining and it is difficult to know precisely what differentiates each of the usages. Fortunately, I can leave to the specialist in the history of the physical sciences the evaluation of the cor-

¹ Address of the President of the Division of the History of Psychology at its charter meeting at the American Psychological Association in New York City, September 1966. During 1966 earlier versions of the paper were given at colloquia at Cornell University and Knox College.

rectness of his reading the details of their history and the various meanings of paradigm, for I am more concerned with what can be drawn from what he has to say about other sciences that he contends lack a contentually defining paradigm.

In all of its meanings, a paradigm has a guidance function. It functions as an intellectual framework, it tells them what sort of entities with which their scientific universe is populated and how these entities behave, and informs its followers what questions may legitimately be asked about nature.

What are the consequences in those sciences that lack a defining paradigm? Foremost is a noticeable lack of unity within a science, indications of which Kuhn acknowledges as one of the sources for his paradigmatic concept, which arose in part from his being puzzled about "the number and extent of the overt disagreement between social scientists about the nature of legitimate scientific methods and problems [1962, p. X]" as compared to the relative lack of such disagreement among natural scientists.

That psychology lacks this universal agreement about the nature of our contentual model that is a paradigm, in my opinion, is all too readily documented.² In psychology there is still debate over fundamentals. In research, findings stir little argument but the overall framework is still very much contested. There is still disagreement about what is included in the science of psychology. In part, at least, it is because we lack a paradigm that one psychologist can attack others who do not agree with him as being "nonscientific" or "not a psychologist," or both. Schools of psychology still have their adherents, despite wishful thinking. And an even more telling illustration, because it is less controversial, is the presence of national differences in psychology to such an extent that in the

United States there is an all too common dismissal of work in psychology in other countries as quaint, odd, or irrelevant. National differences, negligible in the paradigmatic sciences such as physics and chemistry, assume great importance in psychology. A provincialism in psychology in the United States is the consequence, provincialism on a giant scale, to be sure, but still a provincialism which would and could not be present if a paradigm prevailed.

Before its first paradigm had served to unify it and while still in "the preparadigmatic stage" each physical science was guided by "something resembling a paradigm," says Kuhn. Since it was outside his scope, Kuhn said hardly more than this about the matter.

Psychology has not experienced anything comparable to what atomic theory has done for chemistry, what the principle of organic evolution has done for biology, what laws of motion have done for physics. Either psychology's first paradigm has not been discovered or it has not yet been recognized for what it is. Although the presence of an unrecognized paradigm is not ruled out completely, it would seem plausible to proceed on the assumption that psychology has not yet had its initial paradigmatic revolution. The present task is to answer the question—if psychology lacks a paradigm, what serves to take its place?

It would seem that it follows from Kuhn's position that whatever provides the guidance could not have the all-embracing unifying effect of defining the field in question since if it did so, a paradigm would exist. What seems to be required is some form of trends or themes, numerous enough to deal with the complexity of psychology and yet not so numerous as to render each of them only narrowly meaningful. Those which I have isolated follow:

THE PRESCRIPTIONS OF PSYCHOLOGY ARRANGED IN
CONTRASTING PAIRS

- Conscious mentalism-Unconscious mentalism* (emphasis on awareness of mental structure or activity—unawareness)
- Contentual objectivism-Contentual subjectivism* (psychological data viewed as behavior of individual—as mental structure or activity of individual)
- Determinism-Indeterminism* (human events completely explicable in terms of antecedents—not completely so explicable)
- Empiricism-Rationalism* (major, if not exclusive source of knowledge is experience—is reason)
- Functionalism-Structuralism* (psychological categories are activities—are contents)

² Others have expressed themselves about the lack of unity in psychology. If one were asked what is the most comprehensive treatment of psychology since Titchener's *Manual*, the answer must be the multivolumed *Psychology: A Study of a Science*, edited by Sigmund Koch (1959). Its general introduction makes considerable capital of the diversity of tongues with which psychologists speak and the preface comments that psychology proceeds along "several quite unsure directions, [p. V]." To turn to but one other source, Chaplin and Krawiec (1960) close their recent book on systems and theories with the prophecy that the task of the future is "to integrate all points of view into one . . ."; to provide "a comprehensive theoretical structure with the integrating force of atomic theory . . . [pp. 454-455]."

Inductivism-Deductivism (investigations begun with facts or observations—with assumed established truths)

Mechanism-Vitalism (activities of living beings completely explicable by physicochemical constituents—not so explicable)

Methodological objectivism-Methodological subjectivism (use of methods open to verification by another competent observer—not so open)

Molecularism-Molarism (psychological data most aptly described in terms of relatively small units—relatively large units)

Monism-Dualism (fundamental principle or entity in universe is of one kind—is of two kinds, mind and matter)

Naturalism-Supernaturalism (nature requires for its operation and explanation only principles found within it—requires transcendent guidance as well)

Nomotheticism-Idiographicism (emphasis upon discovering general laws—upon explaining particular events or individuals)

Peripheralism-Centralism (stress upon psychological events taking place at periphery of body—within the body)

Purism-Utilitarianism (seeking of knowledge for its own sake—for its usefulness in other activities)

Quantitativism-Qualitativism (stress upon knowledge which is countable or measurable—upon that which is different in kind or essence)

Rationalism-Irrationalism (emphasis upon data supposed to follow dictates of good sense and intellect—intrusion or domination of emotive and conative factors upon intellectual processes)

Staticism-Developmentalism (emphasis upon cross-sectional view—upon changes with time)

Staticism-Dynamicism (emphasis upon enduring aspects—upon change and factors making for change)

The overall function of these themes is orientative or attitudinal; they tell us how the psychologist-scientist must or should behave. In short, they have a directive function. They help to direct the psychologist-scientist in the way he selects a problem, formulates it, and the way in which he carries it out.

The other essential characteristic is that of being capable of being traced historically over some appreciable period of time. On both counts, the term *prescription* seems to have these connotations.³ It

³ A fortunate historical precedent for using prescriptions in this way is to be found in a quotation from Leibniz in his *New Essays Concerning Human Understanding* (1949). It may help to make clear what is meant. "The discussions between Nicole¹ and others on the *argument from the great number* in a matter of faith may be consulted, in which sometimes one defers to it too much and another does not consider it enough. There are other similar *prejudgments* by which men would very easily exempt themselves from discussion. These are what Tertullian, in a special treatise, calls *Prescriptiones* . . . availing himself of a term which the ancient jurisconsults (whose language was not unknown to him) intended for many kinds of exceptions or foreign and

is defined in the dictionaries as the act of prescribing, directing, or dictating with an additional overtone of implying long usage, of being hallowed by custom, extending over time.⁴

predisposing allegations, but which now means merely the temporal prescription when it is intended to repel the demand of another because not made within the time fixed by law. Thus there was reason for making known the *legitimate prejudgments* both on the side of the Roman Church and on that of the Protestants [Book IV, Ch. 15, pp. 530-531]."

⁴ Something akin to the prescriptive approach has been suggested in the past. In the early part of the last century Victor Cousin (1829) followed by J. D. Morell (1862) developed a synthetical system of the history of philosophy based upon a division into the four aspects of sensationalism, idealism, scepticism, and mysticism.

In the '30s, Kurt Lewin (1935) was groping toward something similar in his discussion of the conflict between the Aristotelian and Galilean modes of thought. Lewin's shift of modes of thought from the Aristotelian to Galilean, although admitting of partial overlap, impress me as too saltatory, too abrupt in movement from qualitative appearance to quantitative reality, from search for phenotypes to search for genotypes, from surface to depth, from disjointed descriptions to nomothetic search for laws. They are, in my opinion, not so much a matter of qualitative leaps as they are gradual changes with the older views still very much operative. Lewin's conceptualizing in relation to the historic facts seems similar in spirit to Piaget's brilliant strokes on the process of development. I suspect that if we were to take Lewin as seriously, as did the American investigators who followed the leads of Piaget into painstaking detailed research, we would find that there was much blurring and overlap of these Lewinian shifts, as there seems to be at the Piagetian levels.

In applying the shift in modes of classification from the Aristotelian to Galilean syndrome, Brunswik (1956) placed psychology as showing the shift between Titchener in 1901 and Lewin in 1935. It is unfortunate that an arbitrary impression of finality emerges. Prescriptions, at any rate, are not conceived as emerging with such definitiveness; they appear gradually and tentatively to disappear and then to reappear.

Brunswik (1955, 1956) also casually used the term, "Thema" in somewhat the same broad sense that I use prescription, but without working out its meaning or scope. He also used the same term to apply to the seeking of analogical similarity to the content of another science (1955) and even to psychological content, as such (1956).

In his *Historical Introduction to Modern Psychology* through the 1932 revision but not his 1949 revision, Murphy (1932) in his summing up of the decades of 1910 and 1920 utilized quantification as the integrating theme to unify psychology but gave previous consideration to problem trends over the time expressed such as from structural to functional, from part to whole, from qualitative to quantitative and experimental to genetic-statistical. It is important to reiterate that these were used as guiding themes only for a summary of 2 decades, and not for the

It is for the reason of persisting over relatively long periods of time that prescriptions can be of historical moment. In fact, in choosing the particular prescriptions with which I deal the presence of historical continuity over at least most of the modern period was a major decisive factor. If an instance of some conception serving a directive function was of relatively short temporal dimension, it was not considered a prescription. It is for this reason that some prominent trends in psychology today do not appear as prescriptions. Physicalism and operationalism are very much part of the current *Zeitgeist* in psychology but because they are relatively new upon the psychological scene, they are not considered prescriptions. Instead, they serve as challenges to utilize the prescriptions for their explanation. It is characteristic of prescriptions that modern, more specifically formulated versions of the more general historically rooted

earlier history of psychology. When Murphy faced the task of summarizing from the vantage point of the late '40s, he abandoned this form of summarization.

Bruner and Allport (1940) analyzed the contents of psychological periodicals for the 50-year period, 1888-1938, in terms of individual "author's problem, his presupposition procedure, explanatory concepts and outlook in psychological science [p. 757]." The material provided the basis for Allport's 1939 Presidential Address to the American Psychological Association. In his summarization, Allport (1940) indicated that his survey showed an agreement with an earlier one by Bills and not only stated that is psychology "increasingly empirical, mechanistic, quantitative, nomothetic, analytic and operational," but also pleaded that should not psychology be permitted to be "rational, theological, qualitative, idiographic, synoptic, and even non-operational [p. 26]?" Thus, Allport and I show substantial agreement since five out of six "presuppositions" as he calls them, are among those in my schema of prescriptions. The reason that one exception, operational-nonoperational presuppositions, is not included in my schema is that I consider it, as explained before, historically rooted in other older prescriptions.

Allport and Bruner's work cries out for follow-up and I hope to have someone working on it in the near future. Allport did, however, use something akin to his schema in a comparison of American and European theories of personality published in 1957.

A more recent related publication is that of Henry Murray, who in the course of an overview of historical trends in personality research, made a plea for "a comprehensive and fitting classification of elementary trends" (1961, pp. 15-16), which he then classified as regional, populational, theoretical, technique, data ordering, intentional (pure or applied), and basic philosophical assumptional trends. This last, the basic philosophical assumption, was not in any way spelled out so there is no way of knowing what he had in mind.

ones may appear. Empiricism-rationalism have modern descendent in environmentalism-nativism.

To arrive at a reasonably complete and appropriate categorization of the prescriptions, I carried out two separable, although actually intertwined steps. I considered the present scene, for example, in a paper on national trends in psychology in the United States (1965), in order to ascertain what seemed to characterize psychology today, and then turned to the very beginning of the modern period in the history of psychology in the seventeenth century to see if these themes were then discernible in recognizable form. In the 300-page manuscript that I have so far prepared, I can say that I find encouraging indications of the historical roots of these prescriptions somewhere in the contributions of Bacon, Descartes, Hobbes, Spinoza, Leibniz, Locke, and Newton, and in those of the lesser figures of the seventeenth century.

Turning to its directive-orientative function, it will be remembered that this theory of prescriptions is more than a classificatory system, more than a convenient means for a particular historian to order his account. These prescriptions were and are part of the intellectual equipment of psychologists. Psychologists are always facing problems, novel and otherwise. They do so with habits of thought, methodological and contentual, which they have taken from the past. This applies today with just as much force as it ever did in the past. In short, they are dynamic because psychologists accept, reject and combine prescriptions, thus thinking in certain ways, and not in others.

In the above list, prescriptions have been presented in one of the ways they function—as contrasting or opposing trends.⁵ At some point in

⁵ There is a precedent for considering the trends studies in terms of antithetical pairs. In his critical study, *Biological Principles*, J. H. Woodger (1929) considered the problems of biological knowledge to center on six antitheses: vitalism and mechanism, structure and function, organism and environment, preformation and epigenesis, teleology and causation, and mind and body. His emphasis was upon examining the current views circa 1929. Although he showed a lively appreciation of their historical roots, his task was not essentially historical.

W. T. Jones (1961) also has developed a means of evaluation of so-called "axes of bias" of order-disorder, static-dynamic, continuity-discreteness, inner-outer, sharp focus-soft focus, this world-other world, and spontaneity-process. Content high on the order axis shows a strong preference for system, clarity and conceptual analysis while that for disorder shows a strong preference for fluidity, muddle, and chaos. Illustrative applications to samples of

their history most of these prescription pairings have been considered as opposed, even irreconcilable for example, naturalism as opposed to supernaturalism, and empiricism as opposed to rationalism.

A summarization, such as the list gives, inevitably distorts its subject matter. Especially pertinent here is the false impression of tidiness this arrangement of antithetical isolated pairs gives. Consider the dichotomy, mechanism-vitalism. Does this oppositional way of presenting them exhaust the matter? By no means, mechanism bears relation to molecularism, and molecularism may come in conflict with supernaturalism, which in turn, relates to certain forms of dualism.

Prescriptions are by no means simple, dominant, isolated themes moving monolithically through history. In a recent analysis of the history of mathematical concepts in psychology, George Miller (1964) warns expressly against this kind of oversimplification. His treatment of what he calls the "varieties of mathematical psychology" (p. 1), that I consider to bear considerable relation to the quantitavistic prescription, is further subdivided into several categories and subcategories. As he indicates, a more extensive treatment would require still others.

Their oppositional character does lead to explication of another characteristic of prescriptions. At a time, past or present, when both of the opposed prescriptions had or have supporters, it is possible to make some sort of an estimate of their relative strength; in other words, we may speak of dominant and counterdominant prescriptions. Rationalism dominated in seventeenth-century England; Locke was nearly alone in advocating empiricism. Nomotheticism dominates today in the United States; an idiographic prescription is sufficiently viable to make itself heard in protest against the prevailing state of affairs. Hence, idiography is counterdominant.

The presence of dominant and counterdominant prescriptions helps us to see how competitions and conflict may result. Whether purism or utilitarian-

poetry, painting, and documents in the social and physical sciences were made. Syndromes for the medieval, the Renaissance, the enlightenment, and the romantic periods were developed. The last, receiving the most attention, was characterized as showing soft-focus, inner-disorder, dynamic, continuity, and other-world biases. The results so far reported show it to be a promising technique.

Brunswik (1956) also speaks of the survival of dichotomizing doctrines, such as the four temperaments as illustrative of a prescientific syndrome in psychology.

ism dominates in American psychology today, I would be hard put to say, but we can be sure of one thing—both prescriptions have sufficient protagonists to make for a prominent conflict. Dominance may shift with time; at one time supernaturalism dominated decisively, there followed centuries of conflict and today naturalism dominates almost completely.

Although important, their oppositional nature is not always present. Empiricism-rationalism has been presented as a contrasting pair, yet at least to the satisfaction of some psychologists and philosophers of science, they have been reconciled today at a higher level of synthesis. Induction and deduction were also considered antithetical once. In actual practice today, the scientist often sees them as aspects of an integrated method which permits him to weave them together. Sometimes prescriptions, rather than being contradictory, are contrary; there may be gradations, or relationships of degree as seems to be the case with methodological subjectivity-objectivity.

Reinforcing its directive character is the fact that prescriptions sometimes are "prejudgments," presuppositions or preconceptions that are acted upon without examination, that are taken for granted.⁶ Some prescriptions are characterized by their being tacit presuppositions taken as a matter of course and even operating without explicit verbalization. What psychologist today says to himself that the problem he is considering is one that I must decide whether I should or should not quantify; instead he immediately starts to cast the problem in quantitative terms without further ado. Similarly, most psychologists are monists. That many psychologists would react to being called monists with a sense of incredulity and even resentment nicely illustrates my point. We think monistically without using the term. Similarly we are apt to follow empiricistic and naturalistic prescriptions without much thought to the fact that

⁶Of course, implicitness of historical trends is not a novel idea. Whitehead (1925) remarked that when one is attempting to examine the philosophy of a period, and by implication to examine a science as well, one should not chiefly direct attention to those particular positions adherents find it necessary to defend explicitly but to the assumptions which remain *unstated*. These un verbalized presuppositions appear so obvious to their adherents that it may even be that no way to state them has occurred to them. In similar vein, Lovejoy (1936) has observed that implicit or incompletely explicit assumptions operate in the thinking of individuals and ages.

we do so. But there was a time when the issues of quantitateness-qualitativeness, of monism-dualism, of empiricism-rationalism, and of naturalism-supernaturalism were very much explicit issues, occupying the center of the psychological stage. Often their implicit character seems to have come about when one became so dominant that the other no longer stirred argument. Sometimes no clean-cut agreed-on solution was verbalized, instead they were allowed to slide into implicitness. A shift of interest, rather than resolution with a clear-cut superiority of one over the other seems characteristic. Old prescriptions never die, they just fade away. Naturally, at some times and to some extent a prescription became less relevant to psychology, but these are matters of degree.

Much of psychology's early history is, of course, a part of philosophy. Many of these prescriptions had their roots in philosophical issues, and are even still stated in what is current philosophical terminology as in monism-dualism and empiricism-rationalism to mention the two most obvious. I do not hesitate to use philosophical terminology because psychology cannot be completely divorced from philosophy either in its history or in its present functioning. This state of affairs is cause for neither congratulation nor commiseration. Psychology is not the more scientific by trying to brush this sometimes embarrassing fact under the rug as do some of our colleagues by teaching and preaching psychology as if it had no philosophically based commitments. They are psychology's Monsieur Jourdaines who deny they talk philosophical prose. Denying there is need to consider philosophical questions does not solve the problem. The very denial is one form of philosophical solution.

Since they were originally philosophical issues, it will be convenient to refer to some prescriptions as "contentual" problems. To bring home this point, the areas of philosophy in which certain of the prescriptions fall might be identified. Rationalism and empiricism have their origins in epistemology, monism and dualism in ontology (nature of reality), and molarism and molecularism in cosmology (structure of reality).

A major task in the history of psychology is to trace how the field individuated from the philosophical matrix. In this process, the prescriptions that served as major guidelines in the emergence of psychology as a separate discipline originally had a philosophical character, which took on a general

scientific character with the emergence of the physical sciences in general, and psychological science in particular. It is in this sense that they can be referred to as philosophically contentual in character. Moreover, consideration by psychologists and others in the sciences transformed them sometimes in ways that only by tracing their history can one see the relation to their parentage.

Often the traditional terminology used herewith, for example, its dualistic and mentalistic locus has had to give way to objectivistic and monistic terminology. Confused and confusing though these terms might be, they still referred to something relevant to psychology. As they are formulated, psychologists may be repelled by "old-fashioned" air of the statement of many of the prescriptions. Justification is found in the fact that these are the terms in psychology's long history until a short 50 years ago.

Lacking a paradigm has meant that psychology looked to other scientific fields for guidance. It is characteristic of prescriptions that borrowing from other fields has taken place. Psychology's heritage from philosophy could be viewed in this manner. But there are other forms of borrowing which have entered into prescription formation. There has been noteworthy borrowing from biology, physiology in particular, signalized by Wundt's calling his work "physiological psychology" in deference to the methodological inspiration it was to him. But physics, highest in the hierarchy of the sciences, has just as often served as the model science. Psychology has had its dream of being a changeling prince. The rejected child of drab philosophy and low-born physiology, it has sometimes persuaded itself that actually it was the child of high-born physics. It identified with the aspiration of the physical sciences, and, consequently, acquired an idealized version of the parental image as a super-ego, especially concerning scientific morality, i.e., the "right" way for a scientist to behave.

Psychologists looked to these other sciences for methodological guidance.⁷ This methodological cast is particularly evident in the prescriptions concerned with nomothetic law, inductivism-deductivism, quantitativism-qualitativism, methodological objectivism and subjectivism, and determinism-in-

⁷ It should be noted that this looking to other sciences and finding evidences for prescriptions implies that paradigmatic sciences are not denied the presence of prescriptions. Exploration is, however, outside of the scope of this paper.

determinism. It follows that these prescriptions apply in varying degrees to other sciences. So, too, does the puristic-utilitarian prescription, and working through the naturalistic-supernaturalistic problem.

Some of the contentual prescriptions have counterparts in other sciences. Salient to all biological sciences are developmentalism-statisticism, functionalism-structuralism, mechanism in its various guises, and molecularism-molarism. It is also at least possible that many of these prescriptions would be found to have counterparts in other non-scientific areas of knowledge, such as literature, religion, and politics. After all, man's reflective life, as the "Great Ideas" of Adler and Hutchins and their cohorts show, has much more interpenetration into the various compartmentalization of knowledge than is customarily recognized. But to explore this further would be to extend discussion beyond the scope of the paper.

In the preparadigmatic stage of a science, a scientist may also become an adherent to a school, that is to say, he may accept a set of interlocking prescriptions espoused by a group of scientists generally with an acknowledged leader. Functionalism, behaviorism, Gestalt psychology, and psychoanalysis are representative.

The orientative character of prescriptions is also present in a school. As Marx and Hillex (1963) recognize, each school seems to follow a directive—you should be primarily concerned with the study of the functions of behavior in adapting to the environment and the formulation of mathematical functions relating behavior to antecedent variables: *functionalism*—you ought to study the stimulus-response connections through strict methodological objectivism; *behaviorism*—you can arrive at useful formulations of psychological principles through consideration of molar units of both stimulus and response, i.e., configurations or fields; *Gestalt*—you should be concerned with the interplay and conflict of the environment and native constituents of the disturbed personality with special attention to its unconscious aspect, *psychoanalysis*.

Salience or nonsalience of particular prescriptions characterize schools. Behaviorism is both contentually objectivistic and environmentalistic (empirical). However, the former is salient; the latter is nonsalient. Contentual objectivism is central and indispensable, environmentalism is not crucial to its central thesis. Behaviorism would still be be-

haviorism even if all behaviorists were nativistic in orientation.

In broad strokes based on salient prescriptions, functionalism is functionalistic, empiricistic, quantitativistic and molecularistic. Behaviorism has as salient orientative prescriptions, contentual objectivism, and molecularism. Gestalt psychology may be said to make salient molarism, subjectivism, and nativism. The salient directive prescriptions of psychoanalysis seem to be dynamicism, irrationalism, unconscious mentalism, and developmentalism.

The differing patterns of salient prescriptions of the schools serves also to make more intelligible their differing research emphases upon particular contentual problems—the functionalists with their empiricistic salience upon learning; the behaviorists with their peripheralism upon motor activity (including learning); Gestalt psychology with its molarism and nativism upon perception; and psychoanalysis with its dynamicism and irrationalism upon motivation.

There is an even broader level of prescriptions, that of national trends exemplified by the Symposium on National Trends at the XVIIth International Congress to which reference already has been made (Watson, 1965). Here greater diversity than that of the schools is expected. Instead of patterns, it is most meaningful to couch their discussion in terms of dominance and counterdominance.

Immersion in the current scene as a participant-observer, adds immeasurably to the already complicated task of the historian who is apt therefore to approach the present with a great deal of trepidation. What will be hazarded is inclusive broad, therefore, crude overall characterization of the current scene of psychology in the United States. It will serve as another exercise in the application of the prescriptive approach. Although couched in terms of a somewhat different array of prescriptions than now is being used, for reasons explained earlier, I will quote from the concluding summary of my paper on this Symposium:

It has been seen that national trends in modern American psychology follow certain dominant prescriptions. Determinism, naturalism, physicalism and monism, although very much operative, are judged to incite relatively little opposition. Functionalism, operationalism, quantification, hypothetico-deductivism, environmentalism, and nomotheticism are likewise dominant, but there are counter-prescriptions which tend to oppose them. As for the schools of psychology, psychoanalysis, very obviously, and

Gestalt psychology, less firmly, still stand apart. Serving as counterprescriptions to those dominant in psychology are those calling for increased complexity in theorizing, for an increased attention to philosophical matters, for general acceptance of phenomenology, for increased attention to existential psychology and in a somewhat amorphous way almost all of the areas of personality theory calls for counterprescriptions of one sort or another [p. 137].

It is important to note that most national prescriptive trends have been stated in terms of dominance and counterdominance, which reflects diverseness, not integration. Indeed, the highest level of integration in psychology is still that of the schools, not that of the nation. Different patterns of dominance and counterdominance are present in different countries. For the sake of brevity, but at the risk of oversimplification, methodological and contentual objectivity, particularly in the form of operationalism prevails in the United States, while methodological and contentual subjectivity, especially in the form of phenomenalism, does so in large segments of Continental Europe.

It follows that patterns of dominant prescriptions characterize a given temporal period and geographical area. When we wish to emphasize the then current intertwined pattern of dominant prescriptions as having a massive cumulative effect, we refer to the *Zeitgeist*. The *Zeitgeist* in itself is empty of content until we describe that which we assign to a particular *Zeitgeist*. The strands that enter into the *Zeitgeist* include the dominant prescriptions of that time. So the *Zeitgeist* and prescriptive concepts are considered complementary. One of the puzzling facets of the *Zeitgeist* theory is just how to account for differential reaction to the same climate of opinion. The prescriptive approach may be helpful in this connection. Plato and Aristotle, Hobbes and Spinoza, Hume and Rousseau, each experienced the same *Zeitgeist* but also had idiosyncratic, non-dominant prescriptive allegiances.

What I have said about prescriptions by no means exhausts this complexity. Prescriptive trends fall and rise again, combine, separate, and recombine, carry a broader or narrower scope of meaning, and enter into different alliances with other prescriptions, change from implicitness to explicitness and back again, and concern with different psychological content and its related theories. Beyond this, I hesitate to go, except to say I am confident there are probably other as yet unrecognized ramifications. Prescriptions endure

while the psychological facts, theories, and areas which influenced their acceptance are ephemeral and ever changing.

If I have stressed the directing and guiding phase of the effect of prescriptions on a scientist's thinking, it is not because of blindness to the other side of the coin, the originality of the scientist. A scientist not only is guided by but also exploits both paradigms and prescriptions. He does so in terms of his originality, and other factors that make for individuality.

My enthusiasm for prescriptions may have left you wondering whether this is all that I can see in the history of psychology. Let me reassure you at this point. The usual contentual topics of psychology, most broadly summarized as sensation, learning, motivation, and personality and the hypotheses, laws, and theories to which their investigations give rise are still considered very much a part of its history. As differentiated from philosophically oriented contentual prescriptions, it is these and related contentual topics which show that a concern for psychology is the subject matter of historical investigation. These contentual topics are the vehicles with which all historians of psychology must work. Even here there is another point about prescriptions that I might mention. There seems to be some historical evidence of an affinity between certain prescriptions and certain contentual topics, e.g., dynamicism with motivation, developmentalism with child and comparative psychology, personalism, idiographicism, and irrationalism with personality, and empiricism with learning. Individual psychologists who have been strongly influenced by particular prescriptions are apt to reflect them in their work. Although the evidence has not yet been sought, it is quite plausible to believe that, reciprocally, choice of problem area may influence allegiance to certain prescriptions. In similar vein, I suspect that prescriptions tend to cluster in nonrandom fashion. Off hand, acceptance of supernaturalism seems to have an affinity for teleology, indeterminism, and qualitativism; naturalism with mechanism, determinism, and quantitativism; nomothesis with determinism; rationalism with deduction; empiricism with induction.

To return to extraprescriptive aspects of psychology, the methods of psychologists—observation and experiment—cannot be neglected in a historical account. Psychologists' use of these methods are

an integral part of that history. However, certain prescriptions, particularly those identified earlier as methodological in nature, allow casting considerable historical material in the way that has been sketched.

Any adequate history of psychology must reconsider the personality characteristics of individual psychologists and the extrapsychological influences, such as social circumstance, which have been brought to bear upon each psychologist. Can one imagine that Hobbes' psychological views were independent of his detestation of organized religion, adoration of a strong central government, and fear of the consequence of political disorders?

I would like to summarize briefly some of the functions that I consider prescriptions to serve. They provide classification and summarization through a conceptual framework which can be applied historically. Prescriptions provide principles of systematization which are related to, and yet to some extent are independent of, the particular contentual or methodological problem of the individual psychologist. They are also mnemonic devices which make it possible to summarize and convey a maximum of meaning with a minimum of words. Going beyond anything even hinted at in the paper, prescriptive theory might also help to make history a tool for investigation of the psychology of discovery, and also serve as a framework for studies using content analysis applied to historical documents.

Prescriptions are characterized by an oppositional character manifested in dominance and counterdominance, an implicit as well as explicit nature, a philosophically based contentual character, a methodological character borrowed from the other sciences, a presence in other fields, an interlocking in schools of psychology with some salient and others nonsalient, a clash of prescriptions at the national level and a participation of prescriptions at the national level, and a participation of prescriptions in the *Zeitgeist*. Since psychology seems to lack a unifying paradigm, it would seem that as a science it functions at the level of guidance by prescriptions.

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