A SEARCH FOR COHERENCE: THE HISTORICAL NARRATIVE IN UNDERGRADUATE STUDIES IN PSYCHOLOGY

David W. Rackham

The undergraduate student of psychology is typically confronted with the task of trying to integrate many seemingly disparate enterprises deployed under a single banner - psychology. Students are attracted to the study of psychology for a variety of reasons. Some have an intrinsic interest in certain aspects of the subject matter which characterizes the discipline. Others expect to find in psychology the means to self-understanding. Still others are inspired by the lofty motive of service to humanity. A distinct minority engage in the study of psychology in pursuit of the possibility of a scientific understanding of mind and behaviour.

Given the diversity of contemporary psychology, students are likely to be at once delighted and disenchanted with the discipline in its present manifestation. Delight may flow from the confirmation of certain long-held and cherished beliefs about the nature of mind or behaviour, of the person, or people in general. Disenchantment may begin to set in with the realization that certain perspectives and methodologies current in the discipline are at distinct odds with one's own biases. At some point in his studies, the student must inevitably confront the reality of a discipline which struggles to accommodate a variety of perspectives and methodologies which, in their diversity, appear to be beyond reconciliation.

Opening a Typical Introductory Psychology textbook to its Table of Contents, the student encounters chapters with such headings as The

Psychobiology of Behaviour, Sensation and Perception, Motivation and Emotion, The Psychology of Learning, States of Consciousness, Cognitive Processes, Developmental Psychology or Lifespan Development, Personality, Intelligence, Abnormal Behaviour and Social Psychology. The authors of such texts usually attempt a brief account of the origins of psychology as a discipline and offer a definition of psychology which, in order to accommodate the diversity of the discipline, is necessarily imprecise.

Lundin (1985) has observed that "there seems to be a psychology of just about everything: politics, economics, history, art, music, literature and religion" (p. 381). The American Psychological Association (APA) is presently organized into 47 divisions or societies, each serving a specialized field of interest or knowledge. Apart from the traditional specializations one might expect, a host of more esoteric interests are recognized by divisions or societies bearing such names as: Society for the Psychological Study of Social Issues (9); Division of Psychology and the Arts (10); Division of Military Psychology (19); Division of Adult Development and Aging (20); Society of Engineering Psychologists (21); Division of Consumer Psychology (23); Division of Psychological Hypnosis (30); Division of Psychology of Women (35); Psychologists Interested in Religious Issues (36); Division of Psychology and the Law (41); Society for the Psychological Study of Lesbian and Gay Issues (44); Society for the Psychological Study of Ethnic Minority Issues (45); Division of Media Psychology (46); and Division of Exercise and Sports Psychology (47). Specializations seem to abound and one is hard-pressed to identity a common thread which would lend coherence to pscychology as a whole.

As the APA struggles to cope with the wide range of interests and specialities among psychologists, the possibility has arisen in recent years that those psychologists favouring the use of rigourous, objective methods of inquiry may secede from the association to form their own, separate, pro-

fessional organization. At the 1988 annual meeting of the Japanese Psychological Association in Hiroshima, Japan, the American environmental psychologist, Seymour Wapner, appeared to lament what seemed to him to be the ongoing disintegration of psychology as a discipline. To stem the tide of dissolution, he suggested the adoption of "person-in-environment" as a basic unit of analysis which could draw psychologists of diverse persuasions together under a common, if somewhat ill-defined, banner.

The tension between proponents of conflicting views of what psychology can and should be has long been endemic to the discipline. Toulmin (1972) noted, quite accurately, it would seem, that psychology has never enjoyed a reputation as a compact discipline. It has always been diffuse by nature, composed of "warring sects", each assured of certain certainties regarding the proper content and methodology of psychology. This has led some observers to question the future of psychology as an independent discipline. Lundin (1985) speculates that from some future perspective, psychology may be seen as a "flash in the pan", having been re-absorbed by those disciplines—philosophy, physics and biology—which gave it birth a little over a century ago. The diverse origins of psychology, its many contemporary cognate disciplines and the sheer complexity of its subject matter all contribute to the sense of a discipline still in search of its mandate.

The continuing lack of coherence in psychology has given rise in some observers to a sense of cynicism or even despair. Lian Hudson offered the following assessment::

> The discipline's (i.e., psychology) health is suspect: as Zangwill remarked, it has failed to produce a coherent body of scientific law; and its fruits unmistakenly have about them an air of triviality. Attempts to justify psychological research in terms of its social utility at present lead inexorably to bathos. There is little we have produced in the last fifty years that is, in any sense of that complex word, 'relevant'.

—Hudson (1972, p. 111)

The emphasis in Hudson's assessment is primarily on the failure of a scientific psychology to produce tangible and meaningful results.

A somewhat less pessimistic view has been offered by Leahey (1980) who, while conceding the possibility that psychology may break up, does not necessarily see this as a bad thing.

> Psychology has a long past, a short history, and an uncertain future. Perhaps it has retreated in modern times, owing to the delusion of a Newtonian synthesis. Today it prospers as a popular and useful field. Tomorrow we may hope that it will break up, leaving each section free to advance in its own way. The final judge will be history.
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> —Leahey (1980, p. 400)

There can be little doubt, as Leahey suggests, that modern psychology gives the appearance of being a thriving enterprise. Tens and even hundreds of thousands of students study its subject matter in universities, colleges, and even at the high school level. Thousands of practitioners offer their services to society in the fields of education and mental health. But as an intellectual pursuit, and particularly as a coherent academic enterprise, the health of psychology may well be suspect. Indeed, some would say that as an academic specialty, psychology hardly qualifies as a discipline in the sense of a coherent body of knowledge. In fact, it may be more appropriate to speak of psychology as "interdisciplinary" in the sense of its diverse origins and multiple, contemporary cognate disciplines.

In the typical undergraduate curriculum in psychology, students are exposed to the traditional (or core) areas of the discipline with offerings in the more esoteric or highly specialized fields as resources permit. A major problem in developing an undergraduate psychology curriculum is defining precisely what the core areas of psychology are or should be. As such, the

pre-requisite structure in a given curriculum will tend to reflect the interests and specializations of the members of a particular faculty. If the faculty is strongly biased toward objective methods, it would not be surprising to see this bias reflected in the curriculum. Conversely, a faculty biased toward the humanistic perspective is likely to develop a curriculum which reflects this preference.

At the undergraduate level in particular, it would seem essential to attempt to convey to the student some sense of the coherence of the discipline as a whole. Failing that, there would seem to be some responsibility to attempt to account in a meaningful way for the fact that there seem to be many psychologies which differ markedly from one another in emphasis and methodology. Recourse to the historical narrative seems to be essential if the current state of affairs in psychology is to be understood, if not rationalized.

Present perspectives and methodologies did not arise in a vacuum. They enjoy a rich and distinguished history. As Lundin (1985) has observed, "psychology has had a long history but a short past" (p. 381). Tracing its origins at least as far back as two millenia to the naturalists and philosophers of ancient Greece, psychology nevertheless only emerged as an independent discipline a little over a century ago. Given the turbulence in which psychology has been engulfed throughout its history, it does not seem difficult to sympathize with Gardner Murphy's suggestion offered some forty years ago now that:

> Whatever difficulties there may be in finding unity in the various psychological disciplines, there is at least one unity to which we can cling for orientation and perspective, for appreciation and synthesis; and this is the tranquil unity of history.
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> —Murphy (1949, p. 3)

The purpose of this paper is to explore various aspects of the problem

of coherence in psychology, particularly as it relates to undergraduate studies in this discipline. After briefly sketching the major dimensions of the problem, attention is directed in particular to the issue of unity within those aspects of psychology where objective, scientific methods constitute the means of inquiry. Finally, the virtues of exposing undergraduate students to the historical narrative are explored as a means of providing them with some capacity for orientation, perspective and synthesis as they confront the diverse enterprise which is modern psychology.

The Ongoing Problem of Coherence in Psychology

As noted earlier, the lack of coherence in contemporary psychology can be attributed to a variety of complex factors. A major manifestation of this disunity is to be observed in the still ongoing dispute between those committed to objective, scientific methods of inquiry and those who favour approaches usually described as humanistic. Within the latter tradition we may include the various schools of psychoanalysis, humanistic psychology, and existential psychology. It is commonly felt that these two broad perspectives are mutually incompatible not only in terms what is perceived to be the legitimate content of psychology but also with respect to acceptable methods of inquiry.

The birth of psychology as an independent discipline is usually traced to the founding by Wilhelm Wundt in 1875 of the first psychological *laboratory* at the University of Leipzig. With concurrent developments in physics and biology setting the stage, it appeared that the time was ripe for the transformation of a long established philosophy of mind to a new "science of mind" called psychology.

For any discipline to claim the status of a science, a number of criteria must normally be satisfied. Its phenomena must be natural phenomena,

amenable to observation through normal human sensory channels or such extensions of these as technology will allow. Natural phenomena are assumed to be governed by laws which can be discovered by techniques of systematic, objective observation. Under the assumption of an orderly universe, the notion of determinism comes into play. By the judicious application of objective methods of inquiry, it should be possible to lay bare the causal relationships giving rise to mental structure and function. Observations must be objective in the sense that they can be replicated by independent observers when the conditions prevailing at the time of the original observations are reinstated. These and other assumptions and criteria collectively define science as an enterprise whose essential methodological characteristic is that of objective, systematic observation verifiable in the public domain.

One senses a prevailing belief at the time psychology emerged as an independent discipline that the only viable path to legitimacy and respect was for psychology to adopt the methods of the natural sciences. Remnants of that attitude seem to persist to the present day as evidenced by the fact that writers of many introductory textbooks apparently find it necessary to justify psychology as a science while simultaneously being forced to concede that many aspects of contemporary psychology have neither the attributes of a science nor any apparent need to justify their legitimacy in such terms.

Within those branches of psychology which have sought legitimacy through the adoption of objective, scientific methods, one finds a range of perspectives on the proper content or focus of a scientific psychology. The first psychological school or system came to be known as "structuralism". Formally established as a psychological system by Edward Titchener under the strong antecedent influence of Wilhelm Wundt, structuralists took as their mandate the scientific study of "mind", particularly the structure of

"mind", in much the same way that a chemist might seek to ascertain the essential building blocks of matter. A sophisticated technique of introspection by highly trained observers was developed which, it was claimed, could lead to objective and independently verifiable observations, hence a science of mind. As a science of mind, structuralism eventually fell into disrepute for a number of reasons, not the least of which was its inability to objectively quantify the attributes of mental structure.

Functionalism was another early school of psychology which emphasized a scientific approach to the study of mind. Unlike structuralism, functionalism, as the name suggests, emphasized the adaptive role of the dynamic mind in its various manifestations. The emphasis on the adaptive nature of mind may be traced to the strong influence of Darwinian notions at that time. As a loosely organized system with too wide a mandate, functionalism foundered on the apparent subjectivity of its methods as "mind" remained a major focus of inquiry.

With the founding of behaviorism by J.B. Watson in the second decade of the twentieth century, the mind was banished from the subject matter of a scientific psychology. For Watson and the many behaviorists to follow, the only legitimate focus of a scientific psychology was behaviour which could be objectively verified and independently confirmed. Mind and all its attributes, particularly consciousness, were banished from psychology on the grounds that they were not amenable to objective analysis. Obsessed with a need for remorseless objectivity, behaviorists sought to identify in stimulus-response terms the basic principles governing behaviour. The role of "mind" in mediating between stimulus and response was essentially irrelevant to a science that stressed prediction and control of behaviour as its essential and sufficient goals.

While the influence of behaviorism as a scientific system of psychology has waned remarkably in recent decades, a scientific psychology con-

tinues to thrive in the burgeoning field of cognitive psychology in which the "mind" in both its structural and functional aspects has been restored as a legitimate target of rigidly objective, albeit often indirect, methods of observation and experimentation. Basic processes of sensation and perception and higher level cognitive functioning, including memory, concept formation, thinking, problem solving and language and even consciousness, have all come under scientific scrutiny (See Gardner, 1985, for an account of these developments).

Physiological psychologists are also on firm scientific ground in seeking to elucidate the properties of mind from an interdisciplinary perspective. On the assumption of a material basis to mind, they utilize methodologies spanning a wide spectrum of specialities including psychology, neuroanatomy, neurophysiology and pharmacology in an effort to identify the biological correlates of behaviour and mental experience.

Although there have been and continue to be obvious disagreements among psychologists wedded to the use of objective methods about what the proper focus of a scientific psychology should be, there seems little doubt that a consensus has been achieved regarding the value of such methods in the study of psychological phenomena. Typical of the claims made in support of objective methods in psychology is that of Donald Broadbent, who, while acknowledging some uncertainty about the beliefs of a future psychology, nevertheless places the utmost confidence in the power and objectivity of the experimental method as the pathway to this future.

> We end then upon a note of doubt, with no certainty about the beliefs which future psychologists will hold. This is as it should be. Nobody can grasp the nature of things from an armchair and until fresh experiments have been performed, we do not know what their results will be. The confident dogmatisms about human nature which fall so readily from pulpits, newpapers' editorials and school prize givings are not for us. Rather, we must be pre-

> pared to live with an incomplete knowledge of behaviour but with confidence in the power of objective methods to give us that knowledge some day. These methods have proved themselves even in the past fifty years. Looking back, we can see them destroying one over-simplification after another; forcing us to reject Pavlov's theory or Hull's and bringing theoretical opponents together by the sheer weight of factual evidence. In this half century, there has been recognizable progress in our understanding of behaviour.
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> —Broadbent (1961, pp. 200-201)

For Broadbent (1974), an objective, scientific psychology is the only way in which the facts essential to future theoretical integration can be produced and verified. In the absence of such methods, one is essentially indulging in a theological exercise in which faith and belief are the sole criteria for sustaining a particular point of view.

Psychologists committed to what they claim to be truly objective methods will argue that without scientific rigour, there is no possibility of establishing or verifying any of the facts. Cohen (1985) points to the intensity with which this belief is held by some scientifically-minded psychologists who see little or no merit in any of the non-scientific perspectives and methodologies which also exist under the banner of psychology. In assessing the contributions to the development of psychology of Sigmund Freud, the founder of psychoanalysis, Hans Eysenck was reported to have voiced on several occasions the sentiment paraphrased below by Cohen:

> Freud truly deserved the Goethe Prize for literature which he won in 1925. Freud was a great novelist. His connection with science has proved embarrassing and has retarded the growth of psychology by fifty years.
>
> —Cohen (1985, pp. 5-6)

If defenders of an objective, scientific psychology are fervent in their

opposition to competing, non-objective conceptualizations of psychology, there is, at the same time, no shortage of psychologists who belittle the relevance and contributions of a scientific psychology, especially that in the behaviorist tradition. If the goal of a scientific psychology is to generate objectively verifiable facts, then a question arises regarding the utility of such facts in the absence of any kind of viable, theoretical integration to lend coherence to these facts. This sentiment has been voiced by Nehemiah Jordan who observed that:

> It is not that facts are lacking; if anything, we are overwhelmed with facts, we have far too many facts at our disposal. What seems to be needed are new ways of processing the facts, perhaps in conjunction with the revival of some of the older, neglected ways of thinking about psychological facts as well.
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> —Jordan (1968, p. 2)

Jordan then goes on to offer a more disparaging view of the fruits of scientific psychology.

> There can be no doubt about it, contemporary scientific psychology is the sterilest of the sterile. Years of arduous labour and the assiduous enterprise of hundreds of professors and thousands of students has yielded precisely nothing.... In the fifty-three years that have passed since that momentous occasion (J.B. Watson, 'Psychology as the behaviorist views it,' 1913), can one positive contribution towards any increased knowledge of man be pointed to? None such can be found: no substantive contribution can be named. The canard that 'psychology is a new science' has outlived its explanatory-away usefulness: the unpleasant and discouraging facts must be faced honestly.
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> —Jordan (1968, cited by Cohen, 1985, p. 3)

Joynson is equally negative in his assessment of the contributions of scientific psychology.

> The history of modern psychology is a record, not of scientific advance, but of intellectual retreat.
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> —Joynson (1976, cited by Leahey, 1980, p. 398)

Liam Hudson, who received his undergraduate training in the behaviorist tradition, graduated with an apparently profound cynicism about the utility of a scientific psychology of the behavioristic variety which, in his estimation, trivialized the complex phenomena it sought to elucidate.

> Any idea that we were there to discover the mysteries of the human mind would have been greeted with embarrassment; the kind of embarrassment that hardens into derision, and eventually into contempt. Just as a man on a desert island was held to illuminate the moral order, so a rat or monkey or a student pressing a bar was thought to illuminate the brain. However odd, even mildly bizarre, such an assumption can now be made to seem, it unquestionably exerted a powerful grip. And it did so for a reason that is essentially aesthetic. The belief that the truth can be laid bare by parsimonious means is inherently handsome. The concept that this can be done by means that are trivial is perhaps inbred and even a little decadent, but attractive nevertheless.
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> —Hudson (1972, pp. 40-41)

In all fairness, it must be acknowledged that the criticisms offered above applied primarily to psychologists in the radical behaviorist tradition whose influence has declined markedly in recent decades as the cognitive revolution in psychology has gained momentum (See Gardner, 1985). While behaviorism continues to exist, it now gains its currency largely in terms of its notable success as a technology of behaviour.

In summary, a fundamental gap seems to exist between psychologists advocating the use of objective, scientific methods and those in the humanistic tradition who feel that the phenomena truly worth investigating are so

complex and transcendent in nature as to resist penetration by such methods. The possibility of reconciling such dramatically opposing views seems remote at the moment. Incoherence in this respect is likely to remain the order of the day for some time to come. This is a problem on which all thoughtful students of psychology must deliberate as they seek to orient themselves to contemporary psychology. Some comfort may be found in recourse to the historical narrative which at least provides some reason why such radically different perspectives can co-exist within a single discipline.

Having demonstrated a dichotomy between psychologists wedded to objective methods of inquiry and those in the humanistic tradition, we now direct our attention to the possibility of coherence within those branches of psychology which advocate the use of objective, scientific methods.

Prospects for a Coherent Scientific Psychology

As noted above, the thoughtful undergraduate student of psychology is inevitably faced with the dilemma of seeking coherence in a discipline which attempts to accommodate a range of disparate perspectives within a single enterprise. As the prospect of specialization arises, he or she is often forced to opt for one tradition or another for want of a synthesis which can reconcile conflicting perspectives. Should the student opt for the scientific approach, he or she may well face another dilemma in terms of what Kuhn (1962, 1970) would term the preparadigmatic nature of scientific psychology. As Marx and Cronan-Hillix (1987) might say, the student must contend with a kind of fumbling activity in which psychologists committed to objective methods nevertheless contend over the significance of the facts they generate.

Defining psychology as "the science of mind and/or behaviour", as many writers of introductory textbooks do, tends to imply that scientific

psychology is a unified, coherent enterprise. However, the history of scientific psychology has been characterized by groups which, in seeking to emulate the tradition of the much more established natural sciences, argue for one single, integrating framework which will accommodate all relevant psychological phenomena. As Leahey notes,

> The assumption seems to be that one day someone will give a synthesis of the laws of behavior, just as Newton synthesized the laws of physics. But the assumption may be questioned. Can a Newtonian synthesis of psychology be made?
>
> —Leahey (1980, p. 399)

In his well-known volume entitled "The Structure of Scientific Revolutions", Thomas Kuhn (1962, revised 1970), offered an account of the nature of progress in science that was quite radically different from earlier notions. In Kuhn's estimation, historical accounts of the development of a science had typically painted a picture of progress as a simple, linear accumulation of facts leading from a primitive to a sophisticated state of knowledge about the phenomena in question. As Koch (1963) has observed,

> When one looks back over the history of science, the successes are likely to be stressed and the failures forgotten. Thus, one tends to see science as starting with a sure sense of direction and progressing neatly to its present form.
>
> —Koch (1983, p. vii)

Koch went on to suggest that with respect to the natural sciences at least, appearance and reality may be one in the same. Kuhn, on the other hand, argued that progress in science is the product of a qualitatively different process. He introduced the notion of "paradigm" as the vehicle for integrating a scientific field not only in terms of content but also with respect to the proper questions to be asked and specific methodologies to be deployed in

seeking answers to these questions. A paradigm is established in a science when a significant proportion of practitioners in that field adopt a common perspective and set of methodologies. The paradigm confers order on what otherwise would be a dizzying array of unconneced facts.

In the pre-paradigmatic phase of a science, the natural history approach prevails. Observations are made and facts are collected but there is nothing to lend coherence to the accumulated body of facts. There is no obvious way to determine which facts are relevant and which are irrelevant to an understanding of nature. With the emergence of a paradigm, however, a framework is provided for rendering value judgements about a body of accumulated facts. The paradigm offers a description of nature which can be put to empirical test.

Kuhn argues that in a mature, paradigmatically-based science, scientists are engaged for the most part in refining the match between the paradigm and that aspect of nature which it describes. This is the period of so-called "normal science" in which the paradigm is accepted as the best available approximation to "truth". Should data inconsistent with the paradigm be encoutered, the first reaction is not to challenge the validity of the paradigm but to assume that procedures may be at fault. It is only when alternative explanations are eliminated that the validity of the paradigm, itself, may be called into question. The crisis precipitated by anomalous data may, if unresolved, lead to an upheaval similar in trauma to that of a political or social revolution in which the existing paradigm is replaced by a new formulation which not only accommodates all the data its predecessor was able to handle but also the anomalous data upon which its predecessor had foundered. A new period of "normal science" ensues in which refining the match between the new paradigm and nature once again becomes the primary pre-occupation of scientists in that area.

For Kuhn, a scientific revolution in which one paradigm gives way to

another is not some mere quantitative phenomenon. It involves transformations in thinking akin to a "Gestalt-like" shift in perception in which the world comes to be viewed in an entirely new way. Among many possible examples, one can point to the triumph of a Copernican view of the universe and the transcendency of Einsteinian physics over Newtonian physics as examples of the type of process Kuhn had in mind.

According to Kuhn, scientists are extraordinarily reluctant to relinquish an existing paradigm when confronted with anomalous data. Ironically, this essential conservatism is the engine of progress in a science. By providing a framework against which the significance of data may be assessed, anomalous data may then be detected. In the absence of such a framework, there is no way of assessing the significance of established facts.

A particularly interesting aspect of Kuhn's formulation is the implication that science may be a much more subjective activity than conventional wisdom would suggest. Subscribing to a particular paradigm makes it very difficult for the scientist to consider alternative interpretations or possibilities. This amounts to a mental set which admits certain aspects of the world to conscious awareness and excludes others. Moreover, the notion that science is on an unerring path to "truth" is refuted in Kuhn's formulation. Use of the scientific method can lead to erroneous conclusions just as surely as it can lead to "truth".

In an amusing, but insightful, essay entitled "On Heroes and Fools in Science", the natural historian Stephen Jay Gould considers from the historical perspective the question of how form or structure (differentiation) emerges in a recently fertilized egg during the course of embryology. In the great debate between the epigeneticists and the preformationists on this issue, it is commonly conceded today that the epigeneticists were correct (heroes) and the preformationists misguided (fools). However, as Gould points out, both could claim to be practicing science and both could lay

claim to some aspect of the truth. As Gould puts it,

> ... Who can say that our current understanding of embryology marks the triumph of epigenesis? Most great debates are resoved at Aristotle's golden mean.... From our perspective today, the epigeneticists were right; organs differentiate sequentially from simpler rudiments during embryological development; there are no preformed parts. But the preformationists were also right in insisting that complexity cannot arise from formless raw material—that there must be something within the egg to regulate its development. All we can say... is that they incorrectly identified this "something" as preformed parts, where we now understand it as encoded instructions built of DNA. But what else could we expect from eighteenth century scientists, who knew nothing of the player piano, not to mention the computer program. The idea of a coded program was not part of their intellectural equipment. And, come to think of it, what could be more fantastic than the claim that an egg contains thousands of instructions, written on molecules that tell the cell to turn on and off the production of certain substances that regulate the speed of chemical processes? The notion of preformed parts sounds far less contrived to me. The only thing going for coded instructions is that they seem to be there.
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> —Gould (1977, pp. 207-208)

Not all historians or philosophers of science accept Kuhn's account of the nature of progress in science (See Gholson and Barker, 1985, for a review of issues relating to this matter). Lakatos (1970) and Laudan (1977), for example, argue that several competing paradigms may co-exist within a science at a given time with data adequately explained by any or all of them. They were also critical of Kuhn's contention that science tends to be a much more subjective process than conventional wisdom implies. Nevertheless, as Marx and Cronan-Hillix (1987) suggest, Kuhn seems to have

been essentially correct in his analysis of how progress occurs in a science.

Raised in the tradition of the natural sciences, Kuhn was interested in the relevance of his analysis to the behavioural and social sciences. After spending a year as a research fellow at the Centre for Advanced Studies in Behavioural Science, he offered the following observations:

> ... Spending the year in a community composed predominantly of social scientists confronted me with unanticipated problems about the differences between such communities and those of the natural scientists among whom I had been trained. Particularly, I was struck by the number and extent of overt disagreements between social scientists about the nature of legitimate scientific problems and methods. Both history and acquaintance made me doubt that the practitioners of the natural sciences possess permanent answers to such questions more than their colleagues in social science. Yet somehow, the practice of astronomy, physics, chemistry or biology normally fails to evoke the controversies over fundamentals that today often seem endemic among, say, psychologists and sociologists.
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> —Kuhn (1962, p. viii)

As Marx and Cronan-Hillix (1987) suggest, psychology in general and scientific psychology in particular are still in the pre-paradigmatic phase of development. They note that the various systems or schools characteristic of psychology throughout its modern history amount to quasi-paradigms at best in the sense that they have lent some coherence to the efforts of groups of like-minded individuals. These systems all fall short of being paradigms in the Kuhnian sense by lacking theories of sufficient scope and precision to synthesize psychology's impresive array of data. This has certainly not been for want of trying as each of the systems of psychology has, at one time or another, sought to render all of psychology in its own image. Marx and Cronan-Hillix (1987) point to Watson's (1978) prescriptions for psychology arranged in contrasting pairs as a means of conferring some order

on psychology at least to the extent that they allow the different emphases in the discipline to be identified, compared and contrasted. However, this is far removed from the kind of coherence that a paradigm in the Kuhnian sense can impose on a body of data.

The pre-paradigmatic nature of psychology in general and of scientific psychology in particular may not be so much a cause for despair as a recognition of the complexity of the subject matter which psychology has taken for its own. In Leahey's (1980) estimation, an all-embracing synthesis of the Newtonian variety, which one tends to encounter in the natural sciences, may simply be impractical, not to mention improbable, for a discipline like psychology. The range of phenomena encompassed by psychology is so diverse as to be unlikely to succumb to a single set of universal laws. Despite the intrinsic appeal of a grand synthesis for psychology, it is important to note, as Leahey points out, that Newton's own synthesis, which would qualify as a paradigm in the Kuhnian sense, had its limitations:

> He (Newton) made drastically simplifying assumptions, could never mathematically explain the motion of more than two bodies in empty space at a time, and attributed some phenomena he could not handle to angels or God.
>
> —Leahey (1980, p. 400)

Leahey argues that the only realistic course for psychology at the moment is to define separate areas of inquiry and to pursue these without the need to assume that any one area will eventually provide the means to encompass all the others. While this may well entail the breaking up of psychology, Leahey contends that this may be the only way in which progress will be possible in the long run.

> Natural philosophy progressed only after its break-up, so the future of psychology may lie in its breaking up. Then, there will be no single science of psychology, but sciences of psychology. Texts will have to begin "Psychology

is a selection of sciences of...."

—Leahey (1980, p. 400)

For Leahey, it is sufficient to define science as "an effort by man to bring a public, empirically based order out of the chaos of sense perceptions" (p. 400). Apart from adherence to a few overriding rules and assumptions, it is then possible to have a variety of sciences, each with its own specific content and methodology. Just as the science of astronomy differs markedly from more experimentally based sciences such as chemistry, so we may have many sciences of psychology in terms of specific content area and defining methodology.

In summary, coherence even in those areas of psychology which adhere to objective methods is likely to remain beyond reach in the foreseeable future. The student of psychology must confront this reality and resort, in the final analysis, to the historical narrative in an effort to comprehend this diversity.

A Role for History

The subject matter of contemporary psychology is so complex, its methodologies so varied and the extent of current knowledge still so limited that the prospect of a unitary or unified discipline seems little more than wishful thinking at the moment. In seeking to make sense of this diversity, it is well to realize that most of the basic ideas and problems which confront psychologists today were current two millenia ago in ancient Greece. Murphy (1949) points to the "enduring importance of Greek philosophy" (p. vii), and notes, quite rightly, that psychology, "in the sense of reflection upon the nature and activities of the mind" (p. x) has always been with us.

Many current theories, perspectives and methodologies in psychology derive from precedents established centuries ago. As Boring (1950) puts it,

"The Greeks were as intelligent as we—there is no evidence that two millenia of evolution have improved man in the dimension in respect of which he excels the great "apes" (p. 6). The principles of association proposed by Aristotle, for example, have found their way into twentieth century theories of learning and are still playing a role in certain modern accounts of cognitive functioning. The mind/body debate had its origins in antiquity and has remained a pressing problem to the present day. Terminologies and methodologies have changed substantially over the years but the basic questions were asked millenia ago. A variety of answers have been given over the years, few of them acceptable in the longer term. Indeed, final answers to these questions continue to elude psychologists of the present era.

Until relatively recent times, students of psychology seemed to see little need to explore the history of their discipline. Being on the cutting edge of progress, wisdom seemed to be the prerogative of the present and the future. What courses were available in the history of psychology at the undergraduate level were often of the elective variety and poorly subscribed. However, as Marx and Cronan-Hillix (1987) have pointed out, the present is only one point on a continuum stretching backward into the past and forward into the future. It is instructive to review past answers to the questions with which we still grapple today and to recognize that, from some future vantage point, the answers we offer today may appear quite primitive in retrospect. Illustrative of the humility which such an endeavour may engender are the various mechanistic analogies for mind envisioned by pioneering thinkers over the ages (See Blakemore, 1977).

The importance of studying the history of any discipline, is increasingly being recognized. In the field of biology, Beveridge argued some years ago that:

> ... Every scientist ought to have at least some knowledge of this subject. It provides an excellent corrective to ever-increasing specialization and broad-

> ens one's outlook and understanding of science. There are books which treat the subject not as a mere chronicle of events but with an insight which gives an appreciation of the growth of knowledge as an evolutionary process. There is a vast literature dealing with the philosophy of science and the logic of scientific method.
>
> —Beveridge (1957, pp. 11-12)

For a discipline so diverse in its origins, content and methodologies as psychology, Beveridge's remarks seem to be especially relevant. The historical narrative may provide the only means by which some order can be bestowed on what otherwise may appear to be chaos. The importance of understanding the origins of psychology is now formally recognized by the American Psychological Association (APA) in terms of a separate division devoted to this specialty. The Journal of the History of the Behavioral Sciences is further tangible evidence of the importance of the historical dimension to an understanding of current practices in a discipline like psychology.

Specialization is obviously the trend today in psychology and many other disciplines. Due to the ever-proliferating data base within a discipline, practitioners essentially have no alternative but to develop expertise in a particular sub-area of their discipline. This is understandable and perhaps, even laudable, but can be dangerous if the investigator develops an intellectual myopia, particularly in an underdeveloped (or undeveloped) discipline like psychology. As such, it is surely appropriate that the undergraduate student in psychology should be given the opportunity to develop an appreciation of the breadth of the discipline in terms of its historical legacy before making a commitment to a particular area of specialization.

This paper began with the observation that the integrity of psychology as a unified discipline has been a concern to many, if not most, psychologists at some point in their careers. It is a concern to the undergraduate

student who seeks to make sense of the diverse set of perspectives and methodologies which characterize contemporary psychology. The systems of psychology's past sought to be all encompassing systems, subsuming the full range of psychological phenomena. None has managed to fulfill its mandate. Even with respect to those psychologists who adhere to objective methods, no coherence can be found in the sense of a pervasive paradigm accepted by the vast majority of practitioners. Despite the most vigourous defence of one's own position and the denigration of others, the fact remains that all current perspectives can lay claim to some legitimacy.

If, as Murphy (1949) suggested, we can at least appeal to the "tranquil unity of history" as a way of orienting ourselves to contemporary psychology, then there are several ways in which this can be done. There is, by now, no shortage of literature dealing with the history of psychology in general or some more specific aspect of the historical record. There are many approaches to unravelling the historical legacy of psychology. Marx and Cronan-Hillix (1987) offer what, by now, has become a fairly standard approach to the issue. Documenting the emergence of psychology in ancient Greece and the major problems (e.g., the mind-body problem) with which philosophers and psychologists have had to contend over the ages, they move on to document the essential features of the various psychological systems such as structuralism, functionalism and behaviorism which characterized psychology's early years as an independent discipline. Antecedent influences are noted as are the major pioneers, founders and developers of each system. The definition of psychology offered by each system is explored as are its major postulates. Using Watson's (1978) eighteen dimensions of psychology arranged in contrasting pairs, each system is anchored with respect to its position on these dimensions. In this way, it is possible to gain some sense of the similarities and differences between competing perspectives and methodologies past and present. Overall, this

approach provides a rather impressive exposure to the antecedents of contemporary psychology and in this way, lends some coherence to contemporary practice in the discipline.

One of many alternative approachs is that developed by Lundin (1985). After documenting the relevance of ancient Greek philosophy to modern psychology, Lundin distinguishes between the "mind route" and the "body route" to contemporary psychology. In tracing the "mind route", largely through theology and philosophy, Lundin documents the "rise of the spirit", which achieved its greatest prominence with the gradual ascendency of Christianity. He then considers the "mind route" from the perspective of modern philosophical influences. The rise of the 'spirit' or 'soul' to a dominant position in theological and philosophical circles raised the essential question of how the soul interfaced with the body to produce the phenomenon we call 'mind'.

The emphasis in the "body route" is on empirical efforts over the centuries to lend a material basis to mental structure and function. The route here lies largely through biology and its cognate disciplines and is associated with the development of neurophysiology, psychophysics and evolutionary theory. Lundin finds that different specializations within contemporay psychology can be differentiated in part in terms of the historical route by which they developed.

It is also quite possible that recourse to the historical record may reveal that the very strength of psychology resides in its diversity. Rather than an admission of weakness, a variety of perspectives and methodologies may actually amount to a form of homage, a tacit admission of the supreme complexity of the subject matter which pscychologists have taken for themselves. It would seem that for the foreseeable future, we must be content with many psychologies rather than one, all-embracing psychology. As such, the hope of discerning some coherence within the current, complex

enterprise known as psychology must continue to reside in recourse to the historical record.

The implications for designers of undergraduate curricula in psychology are clear. Every effort should be made to ensure that students are provided with access to the historical legacy of the discipline which they have chosen to call their own. In this way, they may hope to contend in a meaningful manner with the diversity that defines modern psychology.

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