

**THE INTELLECTUAL BACKGROUND
AND POTENTIAL SIGNIFICANCE
OF F.W.H. MYERS' WORK IN
PSYCHOLOGY AND PARAPSYCHOLOGY**

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DECLARATION

This thesis has been composed entirely by myself and represents research conducted entirely by myself.

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ABSTRACT

Parapsychology, or psychical research, continues to be viewed by many scientists and laypeople as a pursuit characterized by occult beliefs and pseudoscientific approaches, despite the longstanding efforts of its leaders to operate within the framework of modern scientific methods. This thesis represents an attempt, by examining the 19th-century origins of psychical research, both to understand more fully the reasons for the continued rejection of parapsychology as science and also to define the aim of parapsychology and its potential role in or contribution to modern science in general and psychology in particular. Modern science progressed by rejecting the concept of mental, or "spiritual", causality as a vestige of supernaturalistic, teleological thinking. Scientific psychology was built on the foundation of this rejection of mental causality as an inherently unscientific notion, and as a result psychologists abandoned the field's most basic theoretical problems. Psychical research developed explicitly as an attempt to keep alive, and to develop empirical approaches to, fundamental questions about the nature of mind and its relationship to physical processes, at a time when most psychologists were abandoning such questions as metaphysical or religious problems outside the scope of scientific inquiry.

Part I attempts to demonstrate that scientific psychology had its roots in the assumption that mind is a secondary phenomenon derived from matter. In particular, it examines ideas about the relationship of mind and matter in the writings of 11 scientists who were influential in the development of scientific psychology during its formative period, the last half of the 19th century. The essential failure of such scientists to address empirically the problem of the relationship between mental and physical phenomena only further entrenched, and did nothing to resolve, the rift between mind and matter that

had led to the rejection of dualism by modern scientists.

Part II examines the aims and purposes of 19th-century psychical research, as represented by its primary spokesman, Frederic W. H. Myers. In contrast to most other scientists, Myers believed that empirical research on the mind-matter problem is not only possible but is the primary task of and challenge to scientific psychology. Chapters in Part II examine the basic purposes and principles behind Myers's work, the theoretical framework and model of mind that he proposed for psychology, and the phenomena and empirical studies that he thought would be most useful in attacking psychology's basic problems.

Scientists and others who reject parapsychology do so because they believe that parapsychology represents a reversion to supernaturalistic thinking and would thus undermine the foundations of modern science. Parapsychology, however, undermines not science but the long-standing assumption behind modern science and scientific psychology that mental causality is a supernatural, not scientific, concept. In attempting to examine the assumption that matter is the primary, and mind a secondary, derivative, characteristic of nature, parapsychology reminds scientists that science is most fundamentally a method and not a particular set of assumptions. Myers's primary belief was that that method could be used to push our understanding of mind-matter relations beyond both dualism and materialism toward some new, more comprehensive conception.

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INTRODUCTION

CHAPTER 1

SCIENCE, PSYCHOLOGY, AND PSYCHICAL RESEARCH

It is hardly necessary to explain to most educated persons that psychical research (or, to use its more modern designation, parapsychology¹) has throughout its history operated at the fringes of modern science, dismissed by many scientists as a deplorable persistence of occult, irrational, mystical, primitive, superstitious supernaturalism. Parapsychology, its critics say, is a "pseudo-science" characterized by "magico-religious belief" and "irrationality" or even "anti-rationality" (Alcock, 1981). It is symptomatic of "the urge towards mysticism, the occult and the supernatural.... [It is] modern occultism...whether it takes the form of crude supernaturalism or the application of pseudo-scientific methods to outworn superstitions refined and elaborated into speculative metaphysical theories" (Rawcliffe, 1959, 8, 12). Its persistence leaves some observers "with a big question mark about the rationality of mankind" (Marks & Kammann, 1980, 200). Moreover, many scientists believe that, if its claims were accepted, parapsychology would undermine most or all of Western science:

Paranormal phenomena...are intrinsically unacceptable -- there is no way to make them compatible with the total accumulated body of scientific knowledge....The problem lies...in the body of knowledge and theory which must be abandoned or radically modified in order to accept it.
(Brody, 1979, 72-73)

Parapsychology, in other words, threatens to undermine the hard-won intellectual progress of humanity: "It has taken a very long time to overcome the myriad metaphysical explanations for natural phenomena that grew out of the ignorance and magic of our ancestors" (Alcock, 1981, 144), and parapsychology threatens to return us to the superstitious belief in "the operation of 'hidden,' 'mysterious,' or 'occult' forces in the universe" (Kurtz,

1985, 505).

Since its formal inception in 1882 as an organized field, however, psychical research has been dominated and led by persons who have taken their stand with those who recognize science as humanity's greatest tool of knowledge, and firmly against the defenders of theological authority or a supernaturalistic world view. Moreover, they have also since the beginning of the field's history taken great pains to adopt and develop the best scientific methods available at the time². As even its most severe critics sometimes acknowledge,

professional parapsychologists are for the most part dedicated to the principles and methods of science, and in many ways professional parapsychology operates in much the same manner as any other discipline that wears or aspires to wear the mantle of Science. (Alcock, 1985, 538)

Yet despite these longstanding efforts to operate within the framework of acceptable scientific methods, parapsychology has continued to be derisively labelled as occultistic pseudoscience and has in general received little more than a "chilly reception in the halls of science" (Alcock, 1985, 538).

The debate over the status of parapsychology continues (see, for example, Rao, Palmer, Alcock, et al., 1987); but the arguments advanced on either side have changed little in kind through the years, and "steady-state rejection has been the fate of the field for decades" (Pinch, 1987, 604). If there is ever to be a resolution to the problem of whether parapsychology is the occultism it is widely perceived to be by many scientists, or the science that most parapsychologists perceive it to be, it seems unlikely that this will come through continued confrontations by the antagonists. It may be more useful, instead, to try to increase our understanding of the roots and origins of these discrepant positions.

It has become a commonplace -- indeed, one might say, a platitude -- to attribute the origins of psychical research to the mid-Victorian phenomenon of Spiritualism and, more generally, to the 19th-century malaise brought

on as the religious world view was rapidly superseded by the mechanistic, materialistic, impersonal world view portrayed by science (e.g., Cerullo, 1982; Gauld, 1968; Moore, 1977; Oppenheim, 1985; Turner, 1974a). Whether among those who deride and dismiss parapsychology as a vestige of primitive supernaturalism; among those who wish to purge parapsychology of all its associations with Spiritualistic psychical research and establish it firmly as a modern, sophisticated science; or among those who argue that psychical research should return to the original topics and approaches from which it was regrettably diverted -- few would argue with the claim that unmet religious, spiritual, or emotional needs provided much of the original impetus for psychical research. As with most truisms, however, this one has served more as an act of closure than as an opening to new thought, lulling us into thinking we understand all we really need to know about the foundations of psychical research, rather than stimulating us to see gaps in our present perspective and the potential in those gaps for new knowledge and understanding. The roots of psychical research, in fact, are far more extensive than those usually described, and the issues therefore posed by psychical research are far more basic to modern science than is usually acknowledged. I will argue in this thesis that the most fundamental origins of parapsychology lie in major intellectual problems that became particularly acute when, as the last major campaign of the scientific revolution, 19th-century scientists undertook the transformation of psychology from philosophy to science. I will argue in particular that psychical research arose to challenge the abandonment by 19th-century scientists of psychology's most basic theoretical questions.

The attempt to transform psychology into a science raised some unique problems. The phenomena of psychology are unlike those of any of the physical sciences in that they are, above all else, mental. At the theoretical heart of psychology, therefore, are the questions, What

are mental phenomena and what is their relation to physical phenomena? Is mind as primary and fundamental a characteristic of nature as matter is; or is it a secondary characteristic, an evolved, emergent, or epiphenomenal characteristic of matter? As William James put it, is mind or personality a "product" or a "principle" of nature (James, 1898/1906, vi)? Is it "an elementary force in nature" or the "resultant of the really elementary forces" (James, 1902/1958, 105)? Of particular theoretical importance for psychology is the question of mental causality, or volition, or "teleological causation" (Beloff, 1990, especially 88-99): Do mental phenomena initiate changes in the physical world? If so, what are the parameters and laws of such mental causality, and what do they imply about the question of whether mind is a fundamental or a derivative aspect of nature? Again, James succinctly summarized the basic problem: Are "personal forces...the starting-point of new effects," or is the world "a strictly impersonal world" (James, 1897/1961, 47)? Is mind, in short, caused or causal?

The rest of science, however, had found no need to ask such questions. The physical sciences had progressed, in fact, specifically by rejecting mental or "spiritual"³ causality as operative in nature. With the growth of the modern physical sciences, therefore, the assumption that all phenomena of nature are the result of physical causes, and that the notion of mental causality is a vestige of primitive "supernatural" ways of thinking, became firmly entrenched. As I hope to show in the rest of this thesis, scientists instrumental in the development of scientific psychology chose to accept this assumption rather than question its adequacy, and as a result psychology abandoned its own most basic theoretical questions. Psychical research, in contrast, arose to fill the void left when psychologists failed to address these problems. Psychical research thus also confronted scientists with the question, lurking behind psychology, of whether a field whose phenomena are characterized

largely by volition, or mental causality, can be science when physical causality is assumed to be the essence of science. As one of parapsychology's most vocal critics has asked, "How can a science of the spirit exist, given that science is by its very nature materialistic?" (Alcock, 1985, 562). For more than a century, that question has been aimed at parapsychology; but in fact it applies to any psychology that confronts, and does not avoid, basic theoretical questions about the problem of volition, the relation of mental and physical phenomena, and the nature of mind. In short, the problem of whether parapsychology is science derives directly from the never-resolved problem of whether psychology is science.

Science and Psychology

Modern Science

Throughout the 17th and 18th centuries, psychology could be readily defined as that aspect of moral philosophy that attempts to understand mind, or consciousness (that is, the subjective experience of awareness), and all the mental processes associated with the functioning of mind, especially volition (the ability of one's conscious self to initiate and execute freely purposeful behavior) and reason (the apparently unique capacity of human minds to think logically and abstractly). The basis for a clear conceptual distinction between natural philosophy (or the physical sciences) on the one hand and moral philosophy (or the mental sciences) on the other had been laid in the early years of the scientific revolution by two of its key figures, Descartes and Galileo. Descartes' distinction between extended matter and unextended mind, as well as between the involuntary activity of the former and the voluntary activity of the latter, became the point from which nearly all subsequent Western philosophy began; and, although much of Descartes' own philosophy and science had been directed toward understanding the relationship and connections between these two aspects of experience, the overwhelming

tendency in those who followed him was to emphasize the qualitative differences between physical and mental phenomena and thus to treat them as autonomous and independent processes.

Descartes' contemporary, Galileo, had made a similar distinction that became as fundamental to the development of the physical sciences as Descartes' and that, moreover, served to reinforce the Cartesian dichotomy of material and mental phenomena. Galileo said that the perceived properties of objects could be divided into primary and secondary qualities. The primary qualities, such as weight, extension, and motion, were those measurable properties that Galileo considered to be inherent in the objects themselves because they could be conceived as existing independently of a perceiver. On the other hand, secondary qualities, such as color, taste, or heat, existed only in the presence of a perceiver and thus, in a sense, only in the mind of that perceiver. Moreover, Galileo had used this mathematical distinction to identify those perceptions that could be considered reliable and consistent and thus suitable as the basis for a valid, empirical science of physics. Thus, unlike Descartes' differentiation of mind and matter, Galileo's differentiation of primary and secondary qualities implied that the primary qualities were more real and somehow scientifically superior to the secondary qualities; and

the secondary qualities, and by extension any other aspects of life or experience that could not be assimilated to a mathematico-physical view of nature, came more and more to be considered as separate and apart from the physical world. (Mackenzie & Mackenzie, 1980, 140)

Thus launched with some clear guidelines for both their content and their method, the physical sciences took off. Over the next two centuries, science's impressive and growing list of accomplishments had the effect not only of increasing knowledge and improving technology, but also of altering in important ways views about the very nature of the cosmos. Perhaps the single most important foundation on which the scientific revolu-

tion has been built was the principle of mechanistic determinism, that is, that the physical universe operates according to a uniform and unvarying system of impersonal causes and effects. The assumption that a particular sequence of cause and effect was unvarying, and that scientists could identify and describe such sequences, or natural laws, and thus predict future events, was what made science so immensely successful; and every new success in turn confirmed the principle of mechanistic determinism. Closely related to mechanism was the principle of atomistic reductionism, or the assumption that physical systems could be understood in terms of the actions and reactions of their parts. A major goal of science was therefore to identify and describe with ever greater precision the basic elements and processes from which a physical system was built.

The world thus being revealed by the physical sciences was quite a different place from the one previously known. The universe had earlier been perceived as above all else a personal one: Events were the result of some personal agency (human or otherwise), directed toward personal ends and overseen by some absolute personal agency. The world was thus seen as an unpredictable, often capricious place, buffeted by the interplay of conflicting wills and forces. During the 17th and 18th centuries, however, the natural sciences began to portray a physical universe that was above all else an impersonal one: Events were the fixed result of mechanistic, impersonal laws governed not so much from above as from below, by the individual elements leading up to and constituting the event in question. Although belief in some absolute or ultimate personal agency coexisted harmoniously well into the 19th century with the new picture painted by science, this agency more and more took the form of a first cause that had little to do with the subsequent operation of the physical world.

By the 19th century, however, the very success of the physical sciences was beginning to undermine one of the foundations on which they had been built. Distinctions

such as Descartes had made between involuntary or determined physical processes and voluntary mental ones, and such as Galileo had made between measurable properties and unquantifiable ones, had helped give natural philosophy the conceptual and methodological clarity it needed to become empirical science. As the various physical sciences progressed, however, one principle began to emerge from the rest as the most fundamental of all, and that was the principle of continuity. According to this principle, the universe is a unitary phenomenon: The parts are not only all inextricably interrelated, but they all function according to the same basic principles and are all, in the final analysis, of the same basic essence or nature.

Several factors contributed importantly to the development of this view of the universe. The assumption that the physical world is a vast mechanism, and the discovery and elaboration of universal laws of physics that described the unvarying operation of that mechanism, played perhaps the most important role. The study of the structure of both organic and inorganic systems strengthened the view that there are basic particles, or building blocks, from which all complex phenomena are derived. Major philosophical movements as diverse as late 18th-century Enlightenment and early 19th-century Naturphilosophie emphasized the unity of nature or the notion of a universal system and overarching principles that could provide continuity to all branches of knowledge. Two 19th-century scientific doctrines emerged, however, as the most important specific factors in establishing belief in the continuity of the universe. First was the formulation of the principle of the conservation of energy, introduced to the general scientific world primarily through Helmholtz's famous 1847 paper. This law stated that all forms of energy are convertible into each other, that the total sum of energy in the universe is constant, and that there is a continuous transformation of energy from one kind to another. The law thus became the specific foundation for belief in the unity of

all nature in a closed, causal system. Second was Darwin's theory that all biological organisms have evolved through the mechanism of natural selection; this theory was the culmination of a growing movement of evolutionary thinking in the 18th and 19th centuries, to which Darwin's grandfather Erasmus Darwin, Chambers, Lamarck, and many others had contributed. With the application of evolutionary ideas to biology, not only were all forms of life shown to be subject to the same universal mechanisms, but, more importantly, all forms of life could be seen as having developed from the same elementary organisms.

A corollary of this belief in continuity was the growing conviction that, if the world is ultimately a unity, it must all be subject to the same tools of knowledge and that these tools must be the methods of science that had already proved so successful. These methods consisted in essence of observation (whether of naturally occurring or experimentally induced phenomena), the complete description of those observations, and then the application of experimentation, reason, and logic to discover the general laws and principles behind the phenomena. Because the scientific method relied so completely on observation, it followed that only observable phenomena could provide the contents of science and, hence, of knowledge.

The Problem of Scientific Psychology

The belief in the continuity and unity of nature and faith in the efficacy of the scientific method had profound implications for the old distinction between natural and moral philosophy, and specifically for psychology. Among those increasing numbers of people who understood the power of scientific inquiry and felt the impact of its accomplishments, there arose the conviction that the principle of continuity demanded the unity of the psychophysical organism, that mental phenomena, like physical ones, are natural phenomena, and thus that psychology could be subjected to the same empirical meth-

ods that had so revolutionized other branches of natural philosophy and transformed them into science. Throughout much of the 19th century, therefore, it became increasingly controversial to think in terms of two branches of knowledge (natural philosophy and moral philosophy) or two substances differing in nature (matter and mind) or two methods of knowledge (science and philosophy) or, especially, two worlds (the natural, material world and the supernatural, spiritual one). The resulting intellectual turmoil of the 19th century, however, was more basic than a conflict between an old, dying order and a new, more advanced one, or even, as it is so often portrayed, between Religion and Science. It was, in essence, a conflict between experience and knowledge: Individual experience suggested one kind of world -- one of personal agency -- but the cumulative knowledge produced by science was suggesting quite a different world -- one of impersonal agency; and scientific psychology became the point at which those two world views collided, thus presenting science with the most serious challenge to the strength and sufficiency of its assumptions, principles, and methods.

Chadwick (1975, 204-205) has argued that the problem of free will versus determinism was the central issue in 19th-century thought. By the 19th century, the commonsense view that there are essentially two modes of being -- one determined or caused, the other free or uncaused -- had come into direct conflict with the scientific view that the world is a unitary, lawful order. Nowhere was this conflict more apparent than in the proposal that the phenomena of mind be subjected to that ultimate tool of knowledge, science. As Daston (1978, 1982) has described, this attempt to make psychology scientific brought the apparent essence of human experience -- volitional activity -- into direct conflict with the apparent essence of science -- mechanistic determinism. If mind is, as experience tells us it is, a causal, volitional agent whose activities cannot be predicted ahead of time but only (perhaps) be explained

afterward, then how can the study of mind be science, whose power lies in the predictability of lawful, regular, deterministic phenomena?

For some, the answer was that it could not: "Scientific psychology," like "physical mind," was a nonsensical concept. For them, the subject matter of psychology -- Descartes' unextended substance, Galileo's secondary properties -- is antithetical to the subject matter of science -- Descartes' extended substance, Galileo's primary qualities. The methods of science and the model of Nature that had developed in conjunction with science were applicable, therefore, only to the physical world and not to psychology.

For many others in the 19th century, however, the success of the physical sciences had demonstrated that empirical science was the only means of attaining knowledge, and the ultimate rationality of the cosmos depended on science's principle of unity or continuity: "Perhaps the most important development in nineteenth-century intellectual history was the extension of scientific assumptions and methods from the physical world to the whole life of man" (Houghton, 1957, 32). J. S. Mill, in his System of Logic in particular, was the leading spokesman for the increasingly accepted view that "the methods that promised total mastery of the physical environment" could be extended to psychological and social phenomena as well (Altick, 1973, 108, 234). For Mill and his many influential followers, knowledge about the phenomena subsumed under the word mind could only be attained to the extent that psychology could be transformed into science.

The potential incorporation of psychology into science, however, presented a threat to both. If the anomaly of mind, or nonmaterial, volitional, teleological, subjective phenomena, was to be reconciled with the otherwise increasingly uniform picture painted by Western science of mechanistic, atomistic, physical determinism, then either the concept of psychology or the concept of science would have to be altered. Psychologists could

redefine, or reconceptualize, psychology in such a way that it excluded what did not fit the framework of the physical sciences -- such as consciousness or volitional agency; or they could use the phenomena of psychology to test and, if necessary, modify the present model of science that limited causal agency to physical determinism. Psychologists could either accept the Galilean distinction between primary and secondary qualities and the derived conclusions that the physical, measurable world is the only "real" world, the rest being derivative; or they could challenge the assumption that psychological phenomena are secondary and derivative and that psychology could become a science only by studying the primary (that is, physical and measurable) phenomena from which secondary psychological phenomena are assumed to derive. They could either subscribe to the positivist hierarchy of sciences, in which mathematics and physics are the patriarchs and the other sciences are strung below in a line of descent; or they could challenge that hierarchy and the assumption of physical primacy from which it derived. They could, in short, either narrow psychology to fit science, or expand science to accommodate psychology.

Psychology, the newest claimant to the title of science, did not challenge its elders. The history of psychology in the 19th century, therefore -- the story of the transformation of psychology from philosophy to science -- is essentially the story of the nearly unanimous choice of the former course, of attempting to reconceptualize psychology to fit the definition of science as physical science, rather than threaten science with the possibility that it might have to be reconceptualized to accommodate mental phenomena and causality on an equal footing with physical phenomena and causality. As Boring (1933, 6, 8) succinctly stated years later: "Historically science is physical science. Psychology, if it is to be a science, must be like physics....The ultimate abandonment of dualism leaves us the physical world as the only reality. Consciousness will ultimately be

measured in physical dimensions."

The Dichotomization of 19th-Century Thought

General trends in 19th-century thought practically ensured that no serious challenge to the adequacy of the scientific model would be tolerated. There was, above all else in the 19th century, an increasing dichotomization of thought as the old world view collided with the new, a dichotomy that essentially resolved into that of naturalism versus supernaturalism. Jacyna (1981), for example, has described how the immensely influential group of Liberal thinkers at Cambridge in the 1860s pitted Enlightenment rationalism and naturalism against any form of dualism or Theism. As they saw it, at issue was a stark choice between the unity, the lawful self-regulation, and the self-sufficiency of nature on the one hand, and on the other hand belief in some order or law-giver external to nature: For them, as for their 18th-century forebears, among "the important features of the wrong and harmful type of thinking [were] belief in God, in spiritual forces of any kind, in a nonmaterial element of man, in free will or any other exceptions to natural regularity" (Gellner, 1964, 284-285).

Because of this strictly maintained dichotomy of thought, any suggestion that mental phenomena might be primary, causal, or of equal status in the universe with physical phenomena was automatically construed as a return to the supernatural, theological side. As at least one psychologist complained (Ladd, 1892), no psychologist could suggest such a thing without being branded an unscientific supernaturalist, and so this polarization of thought precluded any contribution psychologists might have made toward moving beyond the dichotomy and forging new ways of thinking about the problem of the place of mind in nature.

Another reason the naturalism-supernaturalism dichotomy became so rigidly polarized, as Turner (1974a, 1974b, 1975, 1978) has argued, was that at issue also was whether science would continue to be subordinate to reli-

gion, to be viewed as a tool to serve religious ends, or whether science would become an autonomous discipline, setting its own agenda and serving its own ends. At stake was not only intellectual autonomy, but the intellectual leadership of society at large. Scientists and other Liberal thinkers of the mid-19th century increasingly viewed religion as a primitive approach to knowledge, and they sought to undermine the control clerical authorities had over social, political, and educational institutions and to place the leadership of society in the hands of those committed to a more modern world view.

All attempts at reconciliation between these two world views failed. The most visible and representative effort was that of the Metaphysical Society, founded in London in 1869 by James Knowles as an arena in which major intellectual figures of widely varying views could discuss their differences, try to find some common grounds of agreement, and thus arrive at "a philosophic reconciliation of theologians and scientists, intuitionists and empiricists" (Brown, 1947, 89). The effort failed, however, and the result was an increasing polarization of views, with scientists in particular rejecting anything resembling or even hinting at old theological, dualistic, anthropomorphic, teleological, or supernatural world views.

The Metaphysical Society, however, composed of so many key figures in 19th-century intellectual life, is illustrative not only of the impasse in 19th-century thought that had been reached, but also of the subsequent direction taken. As the attempt at reconciliation of thought failed and the differences deepened, many members became convinced that the different positions were in fact unreconcilable because they represented distinct realms of discourse that lacked common ground by their very definition (Brown, 1947). The failure of the Metaphysical Society, therefore, led to an epistemological pluralism: Members agreed that they would call a truce, carefully draw the boundaries separating the dif-

ferent approaches to knowledge and experience, and henceforth pursue knowledge from their own chosen position, unencumbered by conflicting perspectives or experiences.

The conceptual basis for this bifurcation that came to permeate late 19th-century thought had been particularly articulated by Kant (see, e.g., Patrick, 1911; Ward, 1904). In an attempt to resolve the conflict between scientific mechanism and free will, Kant had distinguished between phenomena and noumena. Phenomena are things as they appear to an observer, filtered through the observer's perception, whereas noumena are things as they really are. Phenomena, according to Kant, are subject to causality, and, because they constitute the world of sensory experience, they are the only objects about which humans can have empirical knowledge. Noumena, in contrast, are entirely free, but because they are things as they ultimately and really are, they are beyond the categories of finite experience and are unknowable except by intuition. Carlyle's concept of Nescience, Spencer's concept of the Unknowable, and Huxley's Agnosticism were similar expressions of "mankind's inability to discover or to articulate the answers to ultimate questions" (Turner, 1975, 336).

A common theme among late 19th-century scientists and psychologists, therefore, concerned the limits of science, or knowledge, and most agreed that the domain of science consisted of observable, and thus ultimately physical, phenomena, all else being relegated to entirely separate realms of thought, notably metaphysics, ethics, or religion. Such categorization, however, was essentially an attempt to deal with paradoxes of human experience, not by resolving them, but by segregating conflicting aspects of experience into separate categories of thought. Out of such compartmentalization grew

the perilous dissociation of the modern scientist having two different thoughts, one for his laboratory and his research, the other for his interhuman relations, his attitude toward life and death, health and disease, his concept of man's place on earth and in the universe. (Riese, 1954, 337)

In sum, in contrast with the early optimistic years of the century, when unity of knowledge was the ideal, by the end of the century the apparently intractable conflicts in human thought and experience had led many people to consider the differences permanently unreconcilable and to begin segregating aspects of human experience as belonging to different realms of discourse or categories of thought (Annan, 1959). In the broadest terms, this meant the separation of science and religion, or science and metaphysics. Scientists had rejected the old dualism because it introduced discontinuity in nature by postulating two substances different in kind and by exempting mind (that is, consciousness, reason, and volition) from the rule of mechanistic physical determinism. The old dualism had been an ontological one; the new dualism was a conceptual one -- the separation, not of two substances (mind and matter) but of two categories of thought (physical categories and mental or conceptual ones). Discontinuity was as prominent in the new dualism as in the old; but whereas the old dualism had confronted the problems inherent in the dual nature of experience and had attempted to resolve them with the hypothesis of the interaction of mind and matter, the new dualism simply avoided the problems.

Parallelistic Psychology

The new conceptual dualism, therefore, allowed one to maintain belief in the ultimate continuity and intelligibility of the universe by claiming that such antinomies as mind and matter, volition and determinism, or science and religion belong to different conceptual realms of discourse and that the apparent paradoxes or conflicting positions to which they led simply reflected the limits beyond which human understanding could not go. Conceptual and methodological purity demanded that different realms or categories of thought not be confused. Commitment to science, therefore, as the only valid method of knowledge required commitment also to the assumptions and principles, as well as the methods, on

which science was based -- that is, to the world view of determinism, continuity, reductionism, and naturalism to which it had led. Many influential mid- and late-19th-century naturalists and scientists -- such as those I will discuss in Chapters 3 and 4 -- insisted on the "banishment of religious purposes and categories from scientific work" and thus on a "thoroughly naturalistic science according to which theological, teleological, and metaphysical concerns stood banned both as matters for investigation and as principles of explanation" (Turner, 1978, 365). For these scientists, therefore, if psychologists were to be scientists, they had to purge from psychology all the old dualistic and teleological associations. The suggestion that science might have to be modified to accommodate psychological phenomena constituted a regression to old, unscientific ways of thinking or a confusion of distinct conceptual categories.

This conceptual dualism made it extremely difficult for psychologists to challenge the adequacy of a scientific model based only on physical phenomena; but it also provided the rationale by which many 19th-century psychologists thought that they could resolve the paradoxes and problems inherent in the notion of a scientific psychology. First, it allowed psychologists to distinguish, as conceptually distinct categories, those psychological phenomena that could be translated into observable, objective, measurable, or deterministic terms from those that could not. Thus, physiology and behavior were empirical phenomena suitable for scientific study; mind, consciousness, soul, or volition were noumenal categories suitable only for metaphysical speculation. Second, it also allowed psychologists to distinguish, as conceptually distinct categories, mental and physical phenomena, and thus it enabled psychology to develop as, not just a science, but an autonomous science -- that is, one with its own uniquely defined phenomena -- rather than as a mere sub-discipline of neurology or medicine. As I hope to show in Part I, 19th-century psychologists and other scientists increasingly embraced,

irrespective of their views on the ontological status of mind and matter, the methodological parallelism that had been so clearly enunciated by Hughlings Jackson (Jackson, 1931-1932, 2:72; see also Angel, 1961; Engelhardt, 1975; Levin, 1961; Riese, 1954; Stengel, 1963). According to Jackson's doctrine of concomitance, states of consciousness are different in kind from nervous states; the two occur together, that is, in correlation; but there is no interaction or interference between the two. Mental phenomena and physiological phenomena, in other words, constitute two parallel, completely closed, yet somehow correlated causal chains; but the relationship between the two chains, the nature of the concomitance, is a metaphysical problem beyond the limits of human understanding.

This psychophysical parallelism seemed conceptually and methodologically neat, and as a result it became increasingly influential -- as a methodological, if not an ontological, position -- as 19th-century psychology developed.⁴ But it was neat because it avoided, rather than confronted, basic and troublesome theoretical questions. Even after adopting the position that mind and matter are two conceptual categories that need to be kept distinct, rather than two substances that interact, psychologists were still left with the paradox of two apparently contradictory sets of observations. On the one hand, there was the observed dependence of mental processes on the physical substratum, a dependence that became ever more certain an axiom throughout the 19th century as neurology, biology (especially evolutionary theory), and psychiatry advanced and added empirical data confirming it. On the other hand, there was the observed -- and experienced -- efficacy of mind as an active, volitional agent that seemed able to exert control over many physical processes. Parallelism allowed psychologists to accept both sets of observations without forcing them to reconcile the apparent paradox in a larger theoretical framework addressing the relationship of mental and physical processes.

William James, for one, was acutely aware that parallelism, or the Jacksonian doctrine of concomitance, avoided, and did nothing to help resolve, the basic problems of mental causality inherent in psychology. He first quoted a colleague's injunction to psychologists to adopt the position of psychophysical parallelism:

Having firmly and tenaciously grasped these two notions, of the absolute separateness of mind and matter, and of the invariable concomitance of a mental change with a bodily change, the student will enter on the study of psychology with half his difficulties surmounted. (James, 1890b, 1:136, quoting Charles Mercier)

James replied: "Half his difficulties ignored, I should prefer to say. For this 'concomitance' in the midst of 'absolute separateness' is an utterly irrational notion" (*ibid.*).

Moreover, in thus avoiding the basic theoretical questions of psychology, psychologists were also backing away from some basic questions psychology raised about the nature and essence of science. Daston (1982) has described the various ways in which psychology threatened the model of science that had been built up since the 17th century, perhaps the most important of which was the threat to the assumption of an orderly, causally determined, lawful universe posed by the "glaring anomaly" of volition. She has also pointed out that this "impasse of mind versus science," or of volition versus determinism, "revealed a contradiction between the paired precepts of universal causation and empiricism that had jointly guided scientific naturalism" (111). This contradiction, according to Daston, eventually led some scientists, such as Clerk Maxwell, to re-examine and re-evaluate the nature of science in general. Ironically, however, most 19th-century psychologists chose not to use the problems of psychology as an occasion to question or test the received scientific model. Instead, they reaffirmed the principles of unity, mechanistic determinism, and atomistic reductionism, embraced approaches such as psychophysiology that posed no threat to these principles, and excluded from scientific

psychology whatever phenomena violated those principles (Daston, 1982).

In more general terms, the important question with which psychology should have confronted science was that of whether science is fundamentally a method or whether it is fundamentally a set of principles. Is it, in other words, most basically a particular means of attaining knowledge, or a particular world view? Should science be defined by its methods of empirical observation, experimental manipulation of these observations, and the logical ordering of them by an interactive process of inductive and deductive reasoning? Or should science be defined by its principles of continuity, physical determinism, and reductionism? When observations seem to conflict with principles, should a scientist's allegiance be to the methods of science and to the faith that the methods will ultimately be reliable, even if they lead to the modification or limitation of one or more scientific principles? Or should a scientist's allegiance be to the principles on which science has been based and to the faith that ultimately observations will uphold these principles, even if they now seem to conflict? Are the limits of science determined by which aspects of experience can or cannot be translated into publicly available observations? Or are they determined by defining which aspects of experience do or do not fit the model of present scientific principles?

In Chapters 3 and 4, I will present some examples showing that, when confronted with such questions about the nature of psychology and the nature of science, scientists influential in the development of 19th-century psychology in general chose to define science not as a method with which to confront even contradictory aspects of human experience, but as a world view to which psychology, if it was to be a science, had to be made to conform. Psychologists had, therefore, in essence opted for a rationalist view of science rather than an empirical one, choosing to conform to, rather than risk challenging, certain theoretical foundations of science.

Because 19th-century psychologists refused to question or even critically examine the assumptions of the physical sciences and the world view derived from them, and thus avoided theoretical problems that psychological phenomena alone raised, those assumptions, world view, and pattern of avoiding basic theoretical issues became the foundation upon which modern psychology was built. During its subsequent history, psychology, despite its broad expansion in the 20th century, has for the most part remained within that framework. As Koch (1961) summarized it:

Ever since its stipulation into existence as an independent science, psychology has been far more concerned with being a science than with courageous and self-determining confrontations with its historically constituted subject matter. Its history has been largely a matter of emulating the methods, forms, symbols of the established sciences, especially physics. In so doing, there has been an inevitable tendency to retreat from broad and intensely significant ranges of its subject matter, and to form rationales for so doing which could only invite further retreat. (629-630)

Science and Psychical Research

Psychical research originated in direct opposition to the view, expressed by W. K. Clifford, that fundamental questions about the nature of mind and its relation to matter "have ceased to be open questions, because Science has had her word to say about them" (Clifford, 1874, 715). Nowhere is this underlying theme of resistance to closing psychology's basic questions more evident than in the writings of Frederic W. H. Myers (1843-1901). As the person who contributed more papers to the publications of the (British) Society for Psychical Research (SPR) during its first two decades (1882-1900) than any other single person; as the person who wrote about a broader range of topics than any other psychical researcher, summarizing and incorporating nearly all the early research of his colleagues; and, most importantly, as the person who wrote the most comprehensive, well-developed, psychologically oriented, and widely read theoretical contributions to come out of the field during its formative decades,

Myers must certainly be the focus of attention for anyone wishing to understand the theoretical foundations, purposes, and goals of psychical research. Throughout Myers's writings, the one overriding question that he posed was whether it was valid to assume, as most psychologists did (and do), that physical phenomena are ultimately the primary and causal factors in the universe and that psychological phenomena are secondary and derivative ones; and the one overriding response he made was that this assumption can and should be made the primary and central aim of empirical psychological research.

The Empirical Study of the Mind-Matter Problem

Nearly all psychologists since the mid-19th century have adopted one of two attitudes toward the so-called mind-matter problem, that is, the nature of mental phenomena and their relation to physical phenomena. Some have taken the positivistic position that it is a meaningless metaphysical debate, outside the domain of science, concerning the niceties of abstract concepts of no practical interest or concern to anyone except professional philosophers. Others have argued that the mind-matter problem is of practical concern to working scientists, but as a conceptual and terminological problem, not an empirical one: "The question of the existence, nature and relation of mind and body is now commonly thought not to be resolvable by empirical science, for it involves the meaning and clarity of the conceptual categories of science" (R. Smith, 1981, 269). These psychologists have seen the importance of differentiating between the mind-matter problem as an ontological one and as a conceptual one (Beloff, 1973, 242-243).⁵ They have recognized that as an ontological question, the ultimate nature of mind and matter is unanswerable; but as working scientists they have adopted the position of conceptual dualism or parallelism that had become the guiding characteristic of mid- to late-19th-century thought.

The 19th-century faith in the principle of continuity had demanded the rejection of the old dualism, the belief

"that there are two orders of phenomena, the physical and the mental, two series which are so qualitatively different that the passage from one to the other is unthinkable" (Hart, n.d., 116). The undeniable fact that there are two orders of experience, however, had led to the view that, whereas the underlying, Unknowable "Reality" is somehow unified, the phenomena of human experience reflect "more than one mode of conceiving the same things" (Hart, n.d., 115). Thus, "when he [the modern scientist] distinguishes between the mental and the material...he means two different modes of conceiving human experience" (Hart, n.d., 117). Conceptual clarity, moreover, requires that "there must be no jumping from one mode of conception to another" (Hart, n.d., 118). Hart's discussion of this conceptual dualism was a restatement of the position Hughlings Jackson had argued for in his doctrine of concomitance (Jackson, 1931-1932, 2:72), and many 19th-century scientists influential in the shaping of modern psychology took a similar position. Taine, for example, adopted in his writings on psychology "a grudging dualism ... of the linguistic sort," admitting "that the language of neurophysiology and the language of consciousness are not meaningfully interchangeable" (Robinson, 1978, 59). Although much of 20th-century psychology has been dominated by psychologists who preferred to ignore the mind-matter problem as a metaphysical question, in recent years some psychologists and neuroscientists have again called attention to the need for a conceptual dualism (e.g., Engelhardt, 1975; Robinson, 1978, 1982).

On the other hand, although most psychologists agreed with Hart (n.d., 115) that "neither of these modes is more true than the other," many of them did share the Galilean assumption underlying modern science that one of these modes is more real than the other. Thus, underneath Taine's linguistic dualism was his conviction that "only a single (and physical) process is at the root of all mental phenomena" (Robinson, 1978, 59). Although 19th- (and 20th-) century psychologists professed a wide

range of metaphysical positions on the ontological nature of the mind-matter relationship, as scientists most of them assumed the primacy of physical phenomena, an assumption perhaps deriving, in part, like Galileo's distinction between primary and secondary qualities, from the ease with which we can conceive physical phenomena as existing without mind and the difficulty that many people have of conceiving mental phenomena as existing without matter (see, e.g., Stewart & Tait, 1875/1876, 73-74).

Myers concurred with his colleagues that ontologically the mind-matter problem was beyond the limits of phenomenal experience, and hence of human intellect and science, but that conceptually experience must be ordered according to the dual categories of the mental and the physical:

The physical explanation cannot be substituted for the mental one, because it applies to a different category of facts. The two sets may indeed be diverse aspects of the same essential fact, but for practical purposes we have to regard them as distinct and treat them separately. (Myers, 1903, 1:13n)

What he did not concur with was the belief that the mind-matter problem was limited to being a metaphysical or conceptual one. In his view, the mind-matter problem was also an empirical one -- the basic theoretical question at the heart of psychology, since psychology is uniquely the point at which mental phenomena and their physiological substratum come together.

The major point of contention was over the adequacy of the principle of concomitance, or correlation, which stated that "for every mental state there is a correlative nervous state" (Jackson, 1931-1932, 2:72). This principle was simply a statement that the psychophysical organism is in some sense a unity, manifesting two states that are invariably parallel, although qualitatively different. Beyond this bare statement of concomitance, however, the principle was neutral and allowed for a wide variety of metaphysical positions. As Myers put it, "accompanying the mental phenomena - states of consciousness, there are physical phenomena - brain changes; but

no knowledge of the one throws any light on the other" (Myers, 1903, 1:13n). For most psychologists, this neutral statement of correlation was as far as science could go on the subject:

The issue is not experimental at all, but conceptual. And it is because of this that the extraordinary achievements of the past century in the field of physiological psychology -- and in the neural sciences as a whole -- have had no effect whatever on the philosophical status of the MIND/BODY problem. (Robinson, 1978, 506)

For Myers, on the other hand, the correlation was precisely what most needed observation and testing. The principle of concomitance was the starting-point, not the end-point, for empirical psychological research. The bare principle of concomitance, and the associated belief that the mind-body problem is conceptual, were not wrong; they were simply uninformative.

If the neurosciences had failed to shed any further light on the mind-matter problem, this was because scientific observations concerning the relation of mental and physical processes had been limited to those in which, essentially, brain was the independent variable and mind the dependent one. Some 19th-century scientists did claim that they were empirically studying the functional relationship of mind and body, in studies, for example, derived from Fechner's psychophysics or in neurological research. This was a misleading claim, however, because such studies were automatically limited by the assumption, which Fechner had adopted, that physical processes are the independent variables and mental processes are the dependent variables. It was a misleading claim, in other words, because in such studies certain details of the relationship were being studied, but the basic nature of the relationship was already assumed.

Robinson (1978, 507-508) has claimed that even today the only empirical methods available for studying the mind-matter problem are: the clinical observation of the relationship "between neuropathological states and psychological deficits" and experimental neurosurgery,

including "the severing or sectioning of major [neural] pathways"; "the surgical destruction or removal of anatomically defined structures within the brain"; and the electrical stimulation of neural cells. All such techniques, however, in essence simply confirm in more specific detail what has been known generally for centuries -- that mental functioning is closely dependent on "the integrity and general health of the nervous system" (Robinson, 1978, 506) -- because they are all based on the same general procedure: The observer creates or looks for a condition of damage or alteration to the nervous system and then describes the effects on mental functioning. Such a procedure, designed in principle with the brain as the independent, initially altered variable, is guaranteed to confirm the view that mind is dependent on brain; and as a result such a limited perspective is almost guaranteed not to advance the problem of the mind-matter relationship in any appreciable way.

Such essentially one-sided observations of the relation of mental and physical processes were, in Myers's view, bound to lead to inadequate conclusions. When, he said, we look at a partially illuminated globe, the result is a

familiar optical illusion. When we see half of some body strongly illuminated, and half of it feebly illuminated, it is hard to believe that the brilliant moiety is not the larger of the two. And, similarly, it is the increased definiteness of our conception of the physical side of our mental operations which seems to increase its relative importance, -- to give it a kind of priority over the psychical aspect of the same processes. (Myers, 1886b, 1:xl)

Balancing the one-sided approach to the problem of mind-body concomitance requires a thoroughgoing empirical study of the problem of volition, or mental efficacy -- that is, the study of all phenomena suggesting that a change in mental state (conscious or subconscious) has produced some change in a physiological or physical state. Such phenomena fall into three broad categories, which seem to differ primarily in how common they are and

thus in how well accepted they are. First, there are the normal, expected volitional effects of a person's mind on his or her own body, in which some action seems to have been initiated by a mental state. Second, there are the less common, and therefore more puzzling, volitional effects of a person's mind on his or her own body, such as placebo effects, effects of mental state on health, or physiological effects associated with hypnosis, suggestion, multiple personality, or hysteria. And, finally, volitional phenomena include the rare and highly controversial events suggesting that mental processes have produced changes in matter other than the person's own body, or even directly in other minds.

In principle, the three types of phenomena are theoretically no different: Behind all of them -- say, my thought about a book that I want, resulting in my reaching for it; my thought about the crucifixion of Christ, resulting in a bleeding palm; and my thought⁶ about the number "6," resulting in a significantly large number of sixes appearing in a series of dice throws -- is the unanswered question of the relation of a mental event to a physical event. With phenomena of the first group, and even with phenomena of the second group, it is easy for psychologists to avoid this unanswered question by assuming mental states to be brain states in another guise. With phenomena of the third group, the question is more difficult to avoid, because of the spatial separation of, say, the brain and the dice; and for this reason, psychical researchers have for the most part studied phenomena falling into the third group.

Psychical research was, however, in essence founded to keep alive the general problem of mental efficacy and the implications of mental efficacy for an understanding of the nature of mind. In Myers's view, therefore, psychical research had to address all phenomena relating to these general questions: Is mind a causal agent, in the sense that changes in mental state lead to changes in some physical or physiological system? If so, is the operation of mind as a causal agency limited to specific

physiological or spatiotemporal conditions or boundaries? Finally, is a particular individual personality, or set of mental phenomena, dependent for its existence on a particular biological organism, terminating when the latter does?

Myers believed that a field of study was just opening up that had enormous potential for increasing scientific knowledge about the relationship of mental and physical processes -- namely, the study of subconscious phenomena in all their myriad forms and varieties. Janet (n.d.) argued that subconscious phenomena should not be the starting point for speculations about mind-body relations because we have too little knowledge about mental/cerebral concomitance. Myers believed that it was precisely to remedy that deficiency in our knowledge that subconscious phenomena should be the starting-point, not for unsupported speculations, but for research specifically intended to attack that deficiency. Janet also argued that there was no reason why subconscious phenomena should be the focus of mind-body discussion and speculation, any more than any other psychological phenomena. Myers, however, believed that subconscious phenomena were especially important for psychological research because many of them involve mental and physical processes operating in unaccustomed and unusual ways -- with, as Myers put it, the normal equilibrium between them upset; and many of them thus suggested that the concomitance of mind and brain was not so straightforward as it appeared under normal circumstances. In particular, as I will describe in some detail in Part II, Myers believed that subconscious phenomena were especially important theoretically because they sometimes seemed to reveal latent mental processes or abilities not apparent in the context of normal psychophysiological functioning. The study of subconscious phenomena, which was expanding rapidly during the last decades of the 19th century, increasingly turned up phenomena difficult to reconcile with the prevailing physiological, mechanistic theory of mind. For example, psychosomatic phenomena such as those

associated with hypnosis or hysteria suggested that alterations in mental processes could have an immediate and real effect on physiological processes; and such phenomena thus indicated the possibility of experimentally manipulating mental states as the causal variable and observing the effects on physical processes. Moreover, many subconscious phenomena, occurring in conditions where physical pathology was unlikely, nonetheless resembled phenomena clearly associated with neuropathology. These phenomena suggested that similar effects might not always have similar causes; a blister, for example, might have a physical cause or a mental cause. Myers urged the importance of comparing such phenomena to determine whether, and under what conditions, mind may be an active initiating cause.⁷

Myers's approach to subconscious phenomena was therefore radically different from those of his contemporaries. As I will discuss further in Chapter 2, the essentially parallelistic (or conceptually dualistic) approach that most 19th-century psychologists adopted led to controversies about the nature of subconscious phenomena, focused on the question of whether they should be considered physiological phenomena or psychological phenomena. Many scientists adopted the view that mind is synonymous with consciousness and thus that unconscious processes were by definition cerebral processes devoid of mentality. Others adopted the view that, because subconscious processes phenomenologically resemble consciousness, they are psychological; but, lacking the quality of conscious awareness, they are also inferior and, usually, pathological. Myers, in contrast, viewed subconscious processes as neither primarily physiological nor primarily pathological, but as psychophysical processes that offer the most potential for theoretical advances in psychology because, as deviations from normal psychophysiological functioning, they often reveal normally undetectable psychological processes.

Myers was also influenced, though perhaps less intensively than by research on subconscious phenomena,

by advances in 19th-century physics. Psychological phenomena are of course mental phenomena; but they are also undeniably physical phenomena since mental phenomena take place in association with a physical substratum. It was this psychophysical nature of psychological phenomena that the doctrine of concomitance expressed; and it was precisely this dual nature of psychological phenomena that made scientific psychology such a problem for science and that also, in Myers's view, made psychology potentially so important to science. Myers accepted the doctrine of the concomitance of mind and matter -- in its neutral form -- and, though he never says so directly, there are indications that he probably also would not have argued with the belief that mind and matter are in some sense inseparable --that is, that mental phenomena always take place in the context of some kind of physical substratum. It is difficult to fault those who find nonsensical -- or at least inconceivable -- the notion that there could be a "disembodied" mode of existence, that is, that anything could exist without some phenomenal form and some kind of relationship to environment. As Penfield (1975, 88) expressed it, if mind or personality survives the dissolution of the particular biological structure with which it has been associated, it "must establish a connection with a source of energy other than that of the brain." One can, however, fault those who assume that "embodiment" must be of only one kind, the particular biological one that we currently perceive. Perhaps the greatest accomplishment of 19th-century physics was in beginning to reveal just how limited human sensory perception is, in comparison with the phenomenal universe. It was no accident or aberration that many prominent 19th-century physicists were interested in psychical research, and Myers too recognized the potential importance to the mind-matter problem of the growing realization that the material universe exists in forms and processes undetectable by our unaided senses. Without being a justification for rampant speculation too far beyond what we do now perceive, this realization was

nonetheless a justification for Myers's view that the mind-matter problem can be approached by empirical research and may take on an entirely new appearance as knowledge about the physical world advances.

The Nature of Science

In sum, the normally undetectable psychological phenomena being revealed by the burgeoning field of so-called abnormal psychology and the normally undetectable physical phenomena being revealed by the rapid advances of physics combined to suggest to Myers that the concomitance or correlation of mind and matter also might not be so straightforward as many psychologists assumed. Thus, Myers's work was directed toward attempting to identify phenomena and methods by which the mind-matter problem could, to a certain extent, be transformed into an empirical one; but his insistence that the relation of mental and physical processes could be studied empirically revealed another major difference between him and his colleagues in psychology. The emergence of a scientific psychology, as I mentioned earlier, confronted scientists with the basic question of whether, when observation and theory seem to conflict, science should be considered most fundamentally a method or a world view based on certain assumptions and principles. Most 19th-century psychologists -- such as most of those I will discuss in Chapters 3 and 4 -- accepted as essential to science the principles of mechanistic, physical determinism, and they constructed scientific psychology, especially its methods and its contents, accordingly. Myers, in contrast, viewed science as first and foremost a method -- that of publicly available observation. William James, in summarizing the contributions of psychical research to science, recognized this as one of the essential differences between psychical researchers and most scientists:

Science means, first of all, a certain dispassionate method. To suppose that it means a certain set of results that one should pin one's faith upon and hug forever is sadly to mistake its genius, and degrades

the scientific body to the status of a sect....Although in its essence science only stands for a method and for no fixed belief, yet as habitually taken, both by its votaries and outsiders, it is identified with a certain fixed belief -- the belief that the hidden order of nature is mechanical exclusively, and that non-mechanical categories are irrational ways of conceiving and explaining even such things as human life.
(1897/1961, 41, 44-45)

Myers objected specifically to the assumption, enunciated later by Boring (1933, 6, 8), that "science is physical science" and "the physical world [is] the only reality," and thus, by extension, that the phenomena of psychology, such as consciousness, purpose, and volition, are somehow secondary. He believed that this assumption was as subject to examination and, if necessary, alteration as any other; and he believed that if psychologists developed appropriate methods for transforming the phenomena of psychology -- all its phenomena -- into observable terms, rather than whittling them down to fit a framework developed in response solely to physical phenomena, then science would be likely to be altered and expanded to include principles additional to those so far identified. Such an expansion, in his view, would ultimately strengthen, and not weaken, science.

This divergence between Myers and his colleagues in psychology was, of course, the classic distinction between observational empiricism and deductive rationalism: whether one makes phenomena and their observation fundamental, such that one derives general principles from specific phenomena, or whether one makes previously derived principles fundamental and interprets specific phenomena in light of those principles. It is now a truism to say that both approaches are involved in science; but problems arise when phenomena that are different in kind are treated as if they are the same and thus subject to the same principles. Boring's remarks betrayed an assumption that psychological phenomena and physical phenomena are, in some ultimate sense, comparable; and the modelling of psychology on the physical sciences betrays a similar assumption among all

psychologists who adopted this model. If phenomena are similar in kind, then a rationalistic approach is warranted; if they are not -- or if it is unknown whether or not they are similar in kind -- then an empirical approach is mandatory. Assuming that psychological phenomena are subject only to the same principles that define the physical sciences is like assuming that, because all animals absorb oxygen and produce carbon dioxide, then all living organisms do likewise. This assumption, and the resulting failure to undertake further observations, would result in a failure to learn that there are in fact two classes of living organisms differing (in this respect) in kind: one that absorbs oxygen and produces carbon dioxide, and one that absorbs carbon dioxide and produces oxygen. There is every reason to believe, as all but the exceedingly rare rigid materialist will acknowledge when confronted with the issue, that psychological phenomena are different in kind from physical phenomena. Myers, however, was one of the few psychologists to come down clearly on the side of empiricism,⁸ believing that there may be major principles and laws of nature -- different not only in detail, but even in kind from those identified by the physical sciences -- still to be discovered. The importance of psychology, he argued, was that it was the area of science whose job it was to attempt to discover these; and the failure of psychologists to take up this challenge, as well as their failure to question the adequacy of the world view derived from the physical sciences, was what led directly to the founding of psychical research.

The disagreement between those for whom the world view of modern science was primary and those for whom the method was primary also reflected a tendency among the former to view science more as a utilitarian tool than as an avenue to knowledge, to favor the view of science as (in the terms so commonly used today) applied rather than pure. Most scientists (and psychologists) insisted on the principle of physical determinism and excluded from science all phenomena that seemed to violate this princi-

ple, relegating them instead to the domain of one or another branch of the humanities. This principle became the defining characteristic of science because scientists, as a whole, were becoming more interested in predictable phenomena that could lead to the development of practical and reliable tools and technologies, than in such theoretical questions as whether in fact nature is wholly deterministic and theoretically predictable from physical laws, or whether volition, or psychological determinism, or even indeterminism may not also be characteristics of nature and, if so, under what circumstances. Psychologists embraced this utilitarian, functional approach to science, perhaps even more exclusively than other scientists did, and the principle of impersonal, mechanistic, physical determinism became a major foundation upon which modern psychology was built.

Because of his views on the fundamental nature of science as a method, Myers also, not surprisingly, had a conception of "scientific naturalism" that differed from that of most 19th-century scientists. In its most general form, naturalism entailed the belief that science is the only means of knowledge; that natural laws are universal and unvarying in their operation; and that reality consists of one order (phenomenal nature) and not two (the physical world and a spiritual, or supernatural, realm) (Barnes & Shapin, 1979, 93-94; Turner, 1974a, 1974b, 1975). Myers accepted all of the fundamental axioms of naturalism: the reliance, for knowledge, on science and its method of publicly verifiable observation; the belief in the constancy or lawfulness of the order of nature; and the belief in the principle of the continuity or unity of nature. Where he differed with most 19th-century scientific naturalists was on the question of whether "Nature" should be assumed to be synonymous with "Matter," and therefore on the extent to which "the order of nature" or "the laws of nature" are known. G. H. Lewes, for example, expressed the view of the scientific naturalists that "there is one great Matter," of which Mind is one of Matter's "Modes," that is,

one of Matter's "great diversities in the complication of its elements" (Lewes, 1893, 4). Although all scientific naturalists routinely acknowledged their ignorance and expressed humility in the face of the limits of human knowledge compared with the vast complexity of the universe, they nonetheless used the model of nature as fundamentally physical as a yardstick by which to judge -- and even exclude -- a given phenomenon or observation. They did in fact operate as if the general nature, if not all the details, of the universe were understood in principle. Thus, as Turner (1974a) has pointed out, the naturalists, believing that there is only one nature, deduced their views about the nature of man and mind from what they had learned about the physical world. Myers, equally believing that there is only one nature of which mind is a part, thought instead that the concept of nature and natural law would have to be expanded to include principles suggested by the nature of mind and additional to those demonstrated by the physical sciences. If a phenomenon appeared to conflict with the known laws of nature, accepting it as a valid observation did not constitute a retreat to the old view of divine or supernatural influence on the order of nature; it did, however, require one to consider that the phenomenon might correspond with an unrecognized law, or principle, of nature, perhaps even different in kind from the known ones. Determinism was thus as prominent a feature in Myers's naturalism as it was in that of the scientific naturalists. He was by no means attacking determinism per se, but only the particular conception of determinism that limited primary causal factors to physical processes.

As Turner (1978) has also shown, the naturalists' exclusion of principles or views other than those derived from the physical sciences had motivations other than purely scientific or empirical considerations. The development and professionalization of science in the 19th century involved the scientific naturalists in an open and hostile confrontation with clerical authorities

and religion in general: If science were to become an autonomous, self-determining discipline, the subordination of science to religion in the guise of "natural religion" had to be ended; and if scientists were to gain authority as the intellectual leaders of society, the old authority of the clergy had to be undermined. Any ties between science and religion, in short, had to be totally severed. Although the stated objection by scientists was to the alternate, primitive, pre-scientific claim to knowledge by religious authorities, naturalists in fact would not allow any encroachment by religion into scientific territory, on any terms. They defined science as excluding not only religious answers but also religious questions: Science had to be a "thoroughly naturalistic science according to which theological, teleological, and metaphysical concerns stood banned both as matters for investigation and as principles of explanation" (Turner, 1978, 365).

Thus, the scientific naturalists who rapidly dominated 19th-century science were committed to a concept of science as defined by a particular world view, because this world view or set of assumptions, principles, questions, and answers was one that scientists themselves, and not theologians or lay persons, had developed. To be committed instead, as Myers was, to a view of science as a method alone, which might conceivably (though not necessarily) be used to examine problems or even demonstrate the validity of views and principles different from those laid down by the physical scientists, was seen by the naturalists as threatening to the autonomy and prerogative of professional scientists to regulate and determine the nature and activities of science. Religion could not only not play its old role in science; it, and everything associated with it, were excluded from playing any role whatever.

Myers did not see the relationship between science and religion in such starkly polarized terms. He was challenging the power and authority of scientists -- but only in a limited sense. He did not challenge, and in

fact was a strong and vocal advocate of, the prerogative of trained scientists to conceive and execute the research necessary to produce knowledge about natural phenomena. What he did challenge was the right of scientists to limit scientific inquiry -- notably, psychology -- in ways explicitly derived from their vested interest in upholding a world view. In choosing to limit science to a particular world view, the scientific naturalists began a process that could only lead to the segregation of science from important areas of human experience; and a science that addresses only limited aspects of human experience would seem in danger not only of proving dissatisfying and thus losing its central position in human life and society, but also of proving itself wrong, as partial knowledge so often does. In insisting on science as a method, Myers envisaged instead a psychology that could provide a framework for understanding human experience as a whole and its place in the natural order. For him, defining science solely as a method meant that science provides the tools of knowledge, religion and philosophy the direction. In other words, religion, philosophy, emotion, intuition must ask the questions if research is to be worth doing; science, intellect, reason must do the work if the results are to be worth having.

Psychical Research and "Tertium Quid"

Underlying Myers's attempt to reconcile what many in the 19th century found so utterly unreconcilable -- science and religion -- was what was perhaps the most important premise on which psychical research was founded. In the introduction to a two-volume collection of some of his essays, Myers's fellow psychical researcher, Edmund Gurney, wrote:

Most of the papers deal with matters of contemporary controversy, as to which two antagonistic opinions have been strongly entertained and enforced....In most of these questions I am conscious of 'a great deal to be said on both sides',...[and] the truer view seems to me...not one that would extenuate differences... [but one whose] immediate tendency, on

the contrary, is rather to make each of the duels triangular. In short, it is a tertium quid. (1887, v-vii)

Gurney's words could have stood as the manifesto of the then newly developing field of psychical research. Gurney, Myers, Henry Sidgwick, and many others of the early psychical researchers believed that conflicts between ideas or points of view are settled not by contentious debate but by increased knowledge, and that knowledge advances not by the interminable clashing of old antagonists but by the application of both new methods and new perspectives to old problems. Echoing Gurney, the philosopher F. C. S. Schiller (1894, xi) noted that, in late 19th-century thought in general,

the shock of diametrically opposed views is generating in many thoughtful minds, the conviction that their common ground and reconciliation must be sought deeper down than has been the fashion.

Behind much of the early psychical research, therefore, was the conscious attempt of its leaders to move beyond the increasingly polarized, dichotomous positions of 19th-century thought and seek different, broader perspectives in which aspects of both (or all) sides may have a place.

The polarities of thought that Myers addressed, and tried to move beyond, were numerous. He rejected, for example, the idea that physicalistic naturalism and supernaturalism exhausted the possible views on the nature of the world -- that the choices were limited either to the assumption that nature consists entirely of what we can now see, perceive, or otherwise infer from our present understanding of matter, or to the assumption that the universe is essentially lawless and capricious, liable to disruption by whim or vagary. Implicit in this rejection of the natural/supernatural dichotomy was a rejection of the assumption on which the new scientific psychology foundered, that there could be no intermediate position between a rigidly mechanical determinism and volition. Implicit also (as noted above) was a rejection of the complete separation of science and religion, of the view that any attempt to bring one to bear on the

other was a violation of a categorical distinction between them.

Myers also attempted to bridge the gap between the old, philosophical, mentalistic psychology and the new, experimental, physiological psychology. Scientists who argued that "Myers' conclusions⁹ may be in harmony with the old psychology; they can not be reconciled with the new" (Hurd, 1898, 353) completely missed Myers's point that, because both the old and the new psychology had merits, psychology needed to be reconceptualized in such a way that the old and the new psychologies would be seen to be complementary and not contradictory. For example, among the most fundamental, and most controversial, of the distinctions between the two psychologies was the conception of human personality associated with them. Proponents of the old psychology had held the commonsense view of the self as a subjective, conscious, irreducible unity. Proponents of the new psychology adopted a view of the self derived from reductionistic physiology and associationist philosophy, and argued that the self is an evolved aggregate of innumerable psychophysiological elements. In a sense, the 19th century had seen psychology shift from a "wave" view of mind to a "particle" view of mind. Sensitive to the strengths and inadequacies of both positions, Myers tried to push psychologists beyond the impasse of these two positions and toward "the reconciliation of the two opposing systems in a profounder synthesis" (Myers, 1903, 1:11).

Perhaps the most far-reaching dichotomy that Myers questioned, however, was that of mind and matter. New knowledge in both physics and abnormal psychology suggested that neither matter nor mind were quite what they had long been assumed to be; and Myers responded to this new awareness by suggesting that perhaps old ideas about the relationship between the two, monistic as well as dualistic, were likewise inadequate. He believed that "it is no longer safe to assume any sharply-defined distinction of mind and matter" (Myers, 1886d, 179). H. H. Price (1959/1978, 384) later elaborated:

The hypothesis of a tertium quid which is intermediate between mind and matter as traditionally conceived, and has some of the properties of both -- something which is extended in space (or in some sort of space) and yet also has mental or quasi-mental properties... has been suggested...at various times from the seventeenth century to the present day...[and] deserve[s] serious discussion....[I]t is utterly different from ordinary materialism, and it would be misleading to call it a materialistic theory at all. For the whole point of it is to suggest that the traditional disjunction between "materialistic" and "anti-materialistic" theories is not exhaustive, and that there is a third alternative between the two.

Without pretending that he had that third alternative to offer, Myers nevertheless attempted to offer some new empirical approaches that might ultimately lead to new conceptual advances toward understanding the place and role of consciousness, mind, and human personality in the natural order.

Purpose of Thesis

In the remainder of this thesis, I will attempt to demonstrate in more detail the arguments I have outlined in this introductory chapter -- namely, that psychical research, as represented by Frederic Myers, was in essence an attempt to recall scientific psychology to its basic theoretical problems when most scientists seemed to be abandoning them. In Part I, I hope to show that scientific psychology had its roots in the assumption that mind is a secondary, derivative phenomenon and in the dichotomization of thought that resulted from its avoidance of its own basic theoretical questions. After a brief survey in Chapter 2 of some of the important factors influencing the development of scientific psychology in the 19th century, I will describe in Chapters 3 and 4 some ideas about the nature of scientific psychology and of mind expressed by 11 physiologists, psychologists, and other scientists who were among those instrumental in the latter half of the 19th century in defining the direction in which psychology developed. These 11 scientists were chosen for examination, not only because they were

influential figures in the development of 19th-century scientific psychology, but also because most of them, to a greater or lesser degree, addressed the question of the nature and meaning of subconscious phenomena. The discovery of the subconscious as an important psychological phenomenon coincided with the development of scientific psychology; and it was a watershed in the history of psychology between the old philosophical psychology and the new scientific psychology, because, unlike any other psychological phenomena, subconscious phenomena challenged assumptions about the nature of mind on which the old psychology had been based. Scientists who addressed the problem of the subconscious were particularly likely to be aware of the nature of the conceptual and methodological problems facing psychologists; and their views on the nature of subconscious phenomena were often particularly revealing of their views on the nature of mind in general.

In Part II I hope to show that psychical research -- as represented by its key spokesman, Myers -- challenged the assumption that mind is a secondary phenomenon and thus attempted to recall psychology to its basic theoretical problems of the nature of mind and its relation to physical phenomena. In Chapter 5 I will describe the basic purposes for which psychical research was founded and, especially, the principles under which Myers operated. In Chapter 6 I will describe the theoretical framework that Myers proposed for psychology. Finally, in Chapter 7 I will describe the phenomena and the empirical methods that Myers thought would be particularly useful to psychology in beginning to address its primary problem, the nature of the causal relationship of mental and physical processes.

My purpose in this thesis has not been to examine and evaluate the vast philosophical literature on the mind-matter problem or the numerous philosophical positions on the problem that have been advanced, defended, and denounced. I have avoided this aspect of the problem because, in spite of what some of its critics allege,

psychical research is not and never was a defense of any particular philosophical position. Myers himself seemed to be leaning, not toward the form of dualism as it is routinely (and misleadingly) portrayed and abhorred by most scientists (see, e.g., Churchland, 1986; Smith & Jones, 1986), but toward the idea that neither mind nor matter may be limited to the forms that we perceive and therefore that psychophysical entities -- such as human personalities -- may also not be so limited. Nevertheless, although individual psychical researchers may have leaned toward or even openly advocated a particular philosophical position as the one that best accounts for the phenomena, psychical research itself -- like all science -- should be considered a method for approaching particular questions, not an apologetic for a particular philosophical answer. Although psychical research would never have been established if its founders had not suspected that the physicalistic world view was inadequate, it was nonetheless primarily an attempt to find empirical approaches pertinent to the mind-matter problem, in the hope that the knowledge thus produced would eventually help advance our philosophical understanding of the problem.

This thesis is also not an attempt to judge whether psychical research -- as represented by Myers -- succeeded or failed in its goals, or even whether those goals were reasonable ones. It seems premature to ask how well Myers -- and, by extension, psychical research -- succeeded in what they were doing, or whether they were on the right track, until we understand exactly what it was that they were in fact trying to do. My purpose therefore has not been to try to evaluate either Myers or psychical research, but the more modest (although perhaps, given the widespread misconceptions of both, at present the more important) task of trying to clarify their purposes and basic principles.

Nevertheless, I hope this examination of Myers's ideas in the context of those of some of his contemporaries will contribute something toward an eventual

adequate assessment of psychical research. Historiography has traditionally been of two basic kinds, described by Stocking (1965) as "presentism" and "historicism," or, in Butterfield's (1931, 16) terms, the study of "the past for the sake of the present" and the study of "the past for the sake of the past." Scientists studying the history of science have generally adopted the presentist approach. Because most scientists "take it for granted that the development of science is a cumulative ever-upward progress in rationality" (Stocking, 1965, 213), most scientist-historians study history to seek the antecedents of modern ideas and thus identify those elements of the past that were on the "right" track because they were consonant with the present. Historians, on the other hand, have increasingly adopted the historicist approach, rejecting the presentist approach as a parochial imposition of modern standards or perspectives on those of the past. Instead, such historians seek to understand the past on its own terms and to show how ideas and actions in the past made sense within the context in which they occurred, even if they seem unreasonable or misguided from the perspective of the present.

Stocking, however, has argued that neither of these approaches is completely adequate for the history of science. Since he sees the history of the growth of scientific knowledge "as a complex process of emergence rather than a simple linear sequence," he proposes instead an "enlightened presentism" (Stocking, 1965, 215). Traditional presentism provides too limited and even distorted a view of the past by editing it in terms of the present; historicism tends to cut the past off from the present by regarding it as a self-contained whole. By combining the two approaches, however, an enlightened presentism can broaden and improve science by making modern scientists aware of different perspectives that were either lost or distorted in the transition from the past to the present. The ultimate goal of such an approach is to make judgments, as presentist historians

do, about the value of particular ideas in science, but to do so from a broad historical perspective and not a limited one of the present.

McVaugh and Mauskopf (1974) complained that most histories of psychical research up to that time had been written by persons concerned to demonstrate either the truth or the error in psychical research. Since then, historians writing about psychical research and related areas have frequently claimed to be unconcerned about assessing the field as science and have instead studied it entirely within its own historical context, usually as a social phenomenon (e.g., Cerullo, 1982; Kenny, 1986; Oppenheim, 1985; Owen, 1988; Shortt, 1984; Williams, 1985; Wynne, 1979). In attempting to understand Myers's place within the history of psychology, my purpose has been neither to pit the past and the present against one another and argue for one as the ultimate victor, nor to study the past in isolation from the present. Stocking's account of an enlightened presentism best expresses the perspective from which I have approached my study of Myers, because I believe that the primary purpose of historical studies of science should be to contribute to the assessment of the value both of past scientific endeavours and of present ones.

Huxley, lamenting that science was progressing so fast that scientists were less and less able to study their history, warned that this was detrimental to the progress of science. He introduced his paper describing Descartes' physiological studies by urging scientists to study their field's history because

there is assuredly no more effectual method of clearing up one's own mind on any subject than by talking it over, so to speak, with men of real power and grasp, who have considered it from a totally different point of view. (Huxley, 1874, 556)

Many modern scientists have, unfortunately, ignored Huxley's advice and rejected older points of view as discredited. Writing about anthropology and its too-frequent neglect of its history, Hymes (1963, 60) made

observations that could be extended generally to other sciences:

Our most recent, still continuing, period has been dominated by reaction against an earlier perspective considered too sweeping, too ambitious in scope, too weak in data and method.

The result has been a narrowing of perspective: "The devolution from generalizations of bold scope has been first to drop the generalizations, and then the scope" (Hymes, 1963, 60-61). Moreover, historians who emphasize the study of the history of science within the context of a particular period of time and "with relatively little concern about ultimate judgments of 'truth'" (McVaugh and Mauskopf, 1974, 312) contribute indirectly to the entrenchment of present perspectives in science by failing to encourage any judgment of scientific ideas -- either past or present -- within a broader perspective. Both "presentist" scientists and "historicist" historians, therefore, have contributed to the isolation of modern science from one of its greatest potential sources of new insights and progress; and this isolation has perhaps been most detrimental to psychology and the behavioral sciences, where it remains far from certain which questions should be closed and which should remain open:

Because they have on the whole such notoriously short historical memories, the behavioral sciences of the present have very little awareness that their predecessors were in many instances asking questions and offering answers about problems which have by no means been closed. (Stocking, 1965, 216)

Myers himself believed that the most important contribution of his work would be to keep alive in science questions and problems which have by no means been closed. Historical studies

enabl[e] us to put in full perspective many of our problems and assumptions, ...to renew earlier periods by renewing attention to problems posed in them. Ideally, the fresh start will harness the technical and empirical advances of the latest period to the



broad sense of scope and relevance of its predecessors. (Hymes, 1963, 61)

The purpose of this thesis, therefore, has been to provide some further understanding of the past, not for the sake of the past or for the sake of the present, but for the sake of the future: If we understand better the perspectives of the past, we may see more clearly the limitations of our present perspective and thus be able to judge more reliably what from the past, as well as what from the present, we should take with us into the future. An examination of the historical roots of psychology and psychical research suggests that the continuing conflict between psychical research and the rest of modern science essentially concerns the issue of whether mind as a primary causal factor in nature is an open or a closed question. In addition, the conflict concerns the issue of whether the idea that mental causality is equal in status to physical causality can be brought within the scientific framework, or whether it is a "supernatural," inherently unscientific notion. A better understanding of the origins of this conflict, therefore, may help scientists decide whether future science should consider the question of the status of mind open or closed.

CHAPTER 1

ENDNOTES

¹ A distinction is sometime made between the terms "psychical research" and "parapsychology," the former being the older term and often used to imply the study of spontaneous parapsychological phenomena, the latter being used in a "narrower sense, referring to the experimental and technical parts of psychical research," especially as it has developed since the early experimental work of the Rhines in the 1930s (Grattan-Guinness, 1983, 281; Thalbourne, 281). I think the distinction is more apparent than real -- especially since it underestimates the importance that the early psychical researchers gave to experimental methods. Both terms, in my view, refer to the field of science that should be defined as the study of mental causality. This definition implies no a priori metaphysical position; on the contrary, as I shall argue in the rest of this thesis, at the crux of this definition is the major, still unresolved theoretical problem of whether mental causality -- or volition -- implies that mental phenomena are as fundamental and primary to nature as physical phenomena, or whether mental causality and all psychological phenomena are derivative, emergent, or epiphenomenal characteristics of matter.

² The extent to which these statements are true can only be judged by studying at first hand the enormous serious literature of the field. Reliable surveys and histories include Edge, Morris, Palmer, & Rush, 1986; Gauld, 1968; Krippner, 1977-1990; Mauskopf & McVaugh, 1980; and Wolman, 1977.

³ Some may argue that words such as "spirit" and "soul" imply the theological assumption that some aspect of human beings exists apart from the physical body, whereas words such as "mind," "mental," or "psychological" refer to functional, psychophysiological processes. Such distinctions, in my view, beg the basic theoretical questions. In the context of this thesis, at any rate, the

important distinction is simply between mind or consciousness in its broadest sense, and matter in its broadest sense.

⁴ Young (1970, 196n) has urged that there be "a more general study of the central role psychophysical parallelism has played in the history of neurology, psychiatry, and psychoanalysis."

⁵ I have referred here to Beloff because he has stated most clearly the need to distinguish between the ontological problem and the conceptual problem of mind-matter relations; but Beloff himself most certainly does not limit the mind-matter problem to being either an ontological or a conceptual one. He has instead argued repeatedly that the mind-matter problem can be addressed by empirical research (see, e.g., Beloff, 1990).

⁶ Some people may think that I am using the word "thought" in too broad a manner, since my thought about reaching for the book is conscious, whereas my "thought" about Christ or about "6" may be less than fully conscious, or even totally unconscious. This distinction becomes less clear, however, when one recalls that the volitional impetus behind such ordinary actions as reaching for a book may, on numerous occasions, be as unconscious as the ideational state apparently precipitating stigmatization or psychokinesis. By "thought," therefore, I mean here simply a mental state, conscious or subconscious. Similarly, as I shall discuss in Chapter 6, Myers suggested that the words "volition," "intention," and "consciousness" should not be confined to the state of conscious awareness, but are more properly considered functions of mind in general, conscious as well as unconscious.

⁷ More recently the neurologist Critchley noted that similar symptoms develop in different physiological conditions and, conversely, that the same physiological condition may give rise to different symptoms; and he sug-

gested that this phenomenon "deserves closer attention" (Critchley, 1979, 12).

⁸ I have deliberately used the word "empiricalism" here, rather than "empiricism," to emphasize that I am referring generally to the epistemological approach of observation and experiment, not specifically to the philosophical doctrine of empiricism derived from this approach.

⁹ Hurd did not specify exactly which "conclusions" he was referring to. Nevertheless, from the rest of his comments, one can infer that he probably meant generally Myers's belief that mind is as fundamental and primary to nature as matter.

PART I: THE CONTEXT - LIMITING PSYCHOLOGY

CHAPTER 2

FROM THE OLD PSYCHOLOGY TO THE NEW PSYCHOLOGY

Houghton (1957) has described the Victorian era as, above all else, an age of transition. The distinctive characteristics of Victorian thought and behavior -- many of them apparently contradictory -- were the direct result, as Houghton so well illustrates, of the turmoil that resulted when long-established philosophical assumptions, as well as social, political, and economic institutions, were challenged by a rapid spread of new ideas, new perspectives, and new knowledge. Politically, socially, and economically the Victorians fell between medieval feudalism and modern democracy, between the "old system of fixed regulations...[and] fixed social relations" and a new system based on capitalist laissez-faire and universal suffrage (Houghton, 1957, 5). Moreover, they lived in an age of dramatic transition in views not only about the social order but also about the cosmic order, and they themselves recognized clearly "that the old certitudes are certain no longer and that a reconstruction of thought is now a prime necessity" (Houghton, 1957, 9).

Houghton has also described (in his Chapter 7) three approaches, or types of thinking that appeared, particularly in connection with the intellectual shift from the previously dominant old world view, rooted in Christian theology, to the rapidly emerging new world view, rooted in modern science. Although Houghton himself does not identify each type with a particular historical period, they seem to represent different stages in the development of 19th-century thought. The three stages overlapped chronologically to a great extent, and indeed elements of all three could be found throughout the 19th century, but in a general sense the three stages cor-

responded to the early, middle, and late Victorian periods. The early stage was characterized by a marked and intense partisanship, when, as Mill put it, the "wisdom of the ancestors, and the march of intellect" seemed to be colliding and conflicting (Mill, 1831/1942, 1-2). During this stage, there was a strong tendency to see conflicts in stark black-and-white terms, and, because "the stability of society" seemed to be at stake (Houghton, 1957, 162-163), there was also "little sympathy with neutrality or compromise" and "the strongest pressure to choose between two extremes" (Houghton, 1957, 169). Moreover, the tendency toward unilateral, rigid views was exacerbated by a "new note of acrimony, so potent in its power to widen the gap between the two camps and fix their respective positions more extremely" (Houghton, 1957, 166).

The second type, or stage, of thought was that of the mid-century liberal thinkers who, despite the danger of being "crushed between the right and the left," nonetheless "tried to follow a middle course" (Houghton, 1957, 170). As the 19th-century conflicts and controversies escalated, more and more people realized the complexity of the problems and thought it unlikely that one side had a monopoly on truth. J. S. Mill, according to Houghton, exemplified this position, with "his fine capacity to appreciate ancient wisdom and the weak sides of modern thought, and his readiness to examine opposing arguments on every question" (Houghton, 1957, 168). Houghton has explained how Mill, influenced by Coleridge and the German idea of the dialectical method, came to believe "that truth lies in a mediation between opposing doctrines, both of which are partly true, and that therefore the progress of truth depends on the synthesis of opposites" (Houghton, 1957, 178). For Mill and other like-minded Victorians, the cause of knowledge is best served, not by partisans, but by "those who take something from both sides of the great controversies, and make out that neither extreme is right, nor wholly wrong" (Mill, 1910, 2:360).

According to Houghton, Mill and other open-minded liberals maintained a conviction that knowledge about the contested issues was ultimately possible, however far from it one may now appear to be. In the later Victorian period, however, a new conviction began to emerge -- the belief that knowledge is only relative and subjective, never absolute or objective. This new skepticism about "their capacity to arrive at truth" and resolve conflicts, coupled with a desire to avoid the violent clashes of the past, characterized the third stage of 19th-century thought (Houghton, 1957, 14, 178-179). Houghton contrasted the skepticism and indecisiveness of this stage with the strong convictions of the earlier Victorians; but one could also argue that the relativism of this third stage had much in common with the dichotomization and partisanship of the first stage. Believing that neither the victory of one or another side that was sought during the early stage, nor the reconciliation of sides that was sought in the middle stage, was possible, during the third stage the partisans retreated to their own side of the fence, granted to each side its own undisputed territory, and pursued their subsequent courses of action from the limited perspective of that more narrowly defined territory.

The 19th century was also the age of transition for psychology, as it underwent a major metamorphosis from primarily philosophy to primarily science; and the three stages identified by Houghton as generally characteristic of 19th-century thought are readily apparent in this particular transition as well. In Part I of this thesis, I hope to show that, during its formative period (about 1860-1900), scientific psychology was heavily influenced by the tendency toward rigid and acrimonious dichotomization of positions that characterized the early Victorian period, as well as by the movement toward conceptual parallelism that gained momentum during the later Victorian period. Scientific psychology, therefore, not only had its origins in the dichotomization of thought inherent in an age of transition, but, in its subsequent

development, it contributed importantly to a growing and continuing polarization. In Part II of this thesis, I hope to show that psychical research (as represented by its key spokesman, Myers) was perhaps the most important and sustained attempt to apply the principles of the second stage to psychology -- principles, that is, based on the belief that advances in knowledge come with the reconciliation of opposing positions in some new synthesis, or conception, or tertium quid. In the remainder of this chapter, I will describe first the general nature of the transition that occurred in psychology and then some of the specific developments in science and philosophy that influenced that transition.

General Principles of Psychology: The Old versus the New

The transformation of psychology from philosophy to science during the 19th century was a dramatic one. Psychology had long been considered the primarily philosophical study of mind, especially the metaphysical question of what mind is and the epistemological question of how mind knows. By the 19th century, mind was predominantly conceived to be a reified entity that interacts with the material world, a nonphysical substance that both perceives the external physical world and also acts on it by wielding the brain as a tool. Particularly after Descartes, mind had become carefully distinguished from Nature: It was defined as an indivisible unity that was the subjective side of experience, the causal, volitional agency of teleological events, in direct contrast to objective, divisible, mechanistically caused Nature. Because it was considered to be a substance of a fundamentally different nature from matter, and because its main attributes were reason and will, which were free, mind was considered not to be subject to the same laws, or mechanistic determinism, as matter. Moreover, mind was widely considered to be a uniquely human endowment, separating humans not only from inert matter but even from lower forms of life. It was synonymous with consciousness and could be known only

through our experience of consciousness. Thus, the analysis of faculties of mind (such as memory, reason, or perception) was an important topic of study, and accordingly the introspective examination of the contents of consciousness was the primary method of psychology. Physiology, the study of mind's tool, was seen as having little or no relevance for an understanding of mind itself, or its contents, processes or laws.

The new psychology that emerged and quickly began to prevail during the second half of the 19th century was in many respects the very antithesis of the old psychology. Instead of being the philosophical analysis of subjective mind, psychology was becoming the scientific study of objective behavior. Instead of distinguishing mind from Nature, the new psychologists viewed mind as a part of Nature and emphasized the continuity of mind and Nature, including (and perhaps especially) the continuity of human and other forms of life. Mind was no longer considered to be an autonomous entity but, rather, a function of the nervous system by which a biological organism, through its sensorimotor processes, dynamically adapts to its environment. Instead of being an indivisible unity, mind was viewed primarily as an aggregate built up from simple psychophysiological elements (e.g., sensations). Instead of being a causal agent, outside the reach of the laws of Nature, mind was now seen as caused, a product of the evolving complexity of mechanistic, material processes; instead of viewing the brain as a tool of the mind, many psychologists viewed the brain as the producer of mind. Moreover, mind was no longer equated with consciousness, but was understood by many psychologists as the psychical aspect of psychophysical phenomena, including psychical processes outside as well as within full conscious awareness. For many psychologists, mind was no longer a self-conscious entity but a conceptual or linguistic term denoting a particular set of psychical phenomena associated with a particular biological organism. Because the nervous system was increasingly viewed as the generator

rather than the instrument of mind, physiology, instead of being irrelevant to psychology, was now seen to be the indispensable basis for an understanding of mental processes; and the primary method of psychology became the observational and experimental methods of the physical sciences. Conversely, whereas questions about the nature of mind and mind-matter relations had been central to the old psychology, the new, positivistically oriented psychologists considered them metaphysical and hence not only totally outside the domain of a scientific psychology but even irrelevant to it.

The above general descriptions of the old and the new psychology depict the extreme poles of the transition, and there were many gradations and variations in the views of those persons in the 19th century who either observed or participated directly in the transformation of psychology. Nevertheless, the process of transition was a remarkably rapid one -- occurring primarily during the years 1860-1900 -- as well as a remarkably complete one, at least among those who could be considered psychologists. Despite their often major disagreements on metaphysical and methodological issues, late 19th-century psychologists were nearly unanimous in their agreement that psychology had to be removed from the realm of philosophical discourse and given into the care of scientists. Moreover, they were nearly unanimous in their rejection of the general principles that had guided the old philosophical psychology and in their acceptance of the general principles -- if not all the details -- associated with the new psychology. The dichotomization of thought during psychology's age of transition was thus not so much among psychologists themselves as between psychologists on the one hand and on the other those persons in the larger scientific or lay community whose views on the nature of mind reflected the more traditional views that psychologists were so united in rejecting.

The Development of the New Psychology

The development of scientific psychology involved two major trends, representing not only stages in the transition of psychology from philosophy to science, but representing also stages in the response of the new psychologists to those who opposed their radically different depiction of the nature of mind. These trends were by no means strictly chronological, and indeed elements of both may be found in the work of nearly every major psychologist even down to the present day. Nevertheless, the two trends may be viewed as different and separate stages in the developmental process, as psychologists sought, first, to bring psychology within the general domain of modern science and, second, to carve out a unique role and task for psychology within that general domain.

The primary aim of the first stage was to demonstrate that mind is a part of nature, not something apart from nature and independent of natural law. The goal was to establish the legitimacy of applying scientific methods and principles to the study of mental phenomena. The emphasis, therefore, was on the continuity of mind and mental phenomena with physical nature, and the work consisted primarily of demonstrating the correlation or concomitance of mental and physiological processes and thus establishing the concept of mind as a function of the nervous system. Psychology in this stage was, in short, predominantly physiological.

This physiological psychology exemplified the first stage of transition described by Houghton, since nowhere did "the wisdom of ancestors and the march of intellect" (Mill, 1831/1942, 1-2) conflict so sharply as over the nature of mind. The new physiological psychology was in many respects a negative undertaking, an anti-dualistic, anti-theological, anti-metaphysical attempt to eradicate old ways of thinking about and studying mind. Scientists increasingly identified ignorance and superstition with old and traditional views, progress and knowledge with new and scientific views. The task of transforming

psychology into science seemed to require scientists to reject questions, ideas, or theories that in any way resembled the old views, and people could be classified as obscurantist or enlightened, depending on the extent to which they had embraced the principles of the new psychology and rejected those of the old. As I hope will be evident in Chapters 3 and 4, scientists such as Ribot, Maudsley, Bain, Clifford, Huxley, and others thus intensified polarization of thought about the nature of mind: The acceptance of psychology into the halls of science was at stake, and any compromise or dilution of the new system with elements of the old was a threat, not to be tolerated within psychology.

The second trend in the development of 19th-century psychology was not, however, long in following the first. It was quickly apparent that physiological psychology ran the danger of becoming simply a sub-discipline of physiology, neurology, or biology. If psychology was to attain, not simply scientific status, but autonomy as a science, psychologists had to recognize and define the uniqueness of mental processes. Furthermore, although the concomitance of mental and physical processes was assumed, it also was apparent that scientists were far too ignorant about the detailed nature of that concomitance for any knowledge about physiological processes to shed any light on the correlated mental process. If knowledge about mental functioning -- the unique subject matter of psychology -- was to progress, psychologists had to study mental functioning in its own right, insofar as it could be observed. Behavior, therefore, or the external manifestation of the psychophysiological functioning of an organism, became the defining subject matter of psychology.

As a response to some of the problems inherent in the physiologizing of psychology, this second major trend in 19th-century scientific psychology epitomized the later stage of Victorian thought described by Houghton. As psychologists were keenly aware, the application of scientific principles to the problem of mind not only

left some important issues totally unresolved but even intensified them. Chief among these was the conflict between belief in human volition, or free will, and the scientific principle of determinism. Applying scientific principles, especially of continuity and determinism, to human mental processes and behavior led to the inevitable conclusion that human beings are, in essence, automata, the products of inexorable cause and effect. Such a conclusion, however, not only seemed to be contradicted by the universal human experience of apparently acting volitionally; it also presented major social and ethical problems. If, for example, human beings are products of deterministic external forces, how can they be held accountable for their actions under any social or ethical codes? On the other hand, recognizing that mental functioning is in some sense different from physical functioning, that mental processes cannot -- at least in the present state of knowledge -- be reduced totally to physiological processes, and that psychology cannot simply be subsumed under physiology, seemed to run the risk of revitalizing the old dualism that insisted on mind's uniqueness and separation from physical nature. In short, the undeniably dual nature of human experience, together with the social and moral necessity for a belief in volition, presented psychologists with paradoxes and problems that seemed insoluble without sacrificing either human principles on the one hand or scientific principles on the other. The response in psychology, as it was in other arenas of late Victorian thought, was a conceptual parallelism, in which the conflicting elements were separated and isolated from one another rather than reconciled. The separation of science and religion, science and metaphysics, natural sciences and human sciences, science and values, or physical and mental functioning reflected the growing belief that chronic intellectual problems and paradoxes that had become so acute in the 19th century were the result, not of insufficient knowledge, but of categorical confusion of concepts. The result, as described in Chapter 1, was a new dualism that

was not, like the old dualism, an ontological one but was instead an epistemological, methodological, conceptual dualism.

The general development of psychological thought in the period 1860-1900 thus mirrored what Leary (1979, 234) has described as the two stages, or shift in emphasis, in the work of Wilhelm Wundt from 1862 to 1896: that is, from a psychophysiology and psychophysics that emphasized demonstrating the correlation between physiological and psychological processes, to a more autonomous psychology that emphasized the internal relationship of psychological processes and the legitimacy of studying them independently, "in their own coherence" (Wundt, translated and quoted by Leary, 1979, 234). Despite the shift in emphasis, however, these two stages in the development of scientific psychology were simply two steps toward a single goal: that of replacing the old supernaturalistic view of mind with a new naturalistic one. Perhaps the most important effect of the pervasive influence of science in the 19th century was the growing conviction that humanity is subject to the same principles of law and continuity that govern the rest of the natural order. As Mill had asked: "Are the actions of man, like all other natural events, subject to invariable laws?" (Mill, 1843/1846, Book VI, Ch. 1, Sec. 2, 521). Numerous, diverse developments within 19th-century science supported an affirmative answer.

The Naturalization of Mind

Probably the most important basis for a scientific model of mind was the empiricist philosophy of associationism, developed in the 17th and 18th centuries by Locke, Hume, Hartley, and others (although it had its precursor in Aristotle's laws of association). Associationism was the empiricist doctrine that the mind is initially a tabula rasa, having no innate ideas or capacities, and that all mental content derives solely from experience -- from the accumulation, synthesis, and interplay of discrete simple elements (that is, sensa-

tions) that bond together by lawful associative processes to form complex ideas. Associationism began to undermine the old concept of mind as an indivisible unity or subject that experienced sensations and to replace it with the concept of mind as an aggregate of parts, the sum total of a set of sensory elements. It was thus of immense importance in providing a model of mind that fit the scientific model of the physical world. Like the physical sciences, psychological associationism was atomistic: All phenomena were combinations of simple, elementary "building blocks." By providing this atomistic model of mind, associationism laid the foundation for much of 19th-century scientific psychology, which was devoted to the analysis of mental phenomena into their constituent elements, at the expense of studying mind as a whole (Daston, 1982). Moreover, associationism was physical, in that those primary elements were sensations produced by physical stimuli; and in the 19th century associationism became physiological when the model of the nervous system and brain as a complex of associative nerve connections became predominant. Most importantly, however, associationism introduced into psychology the primary scientific principle of lawful determinism. Instead of a free, volitional agent, mind could now begin to be viewed as a mechanistic phenomenon, the product of natural laws.

The most important direct influence on the development of scientific psychology, however, was certainly the rapid progress in the field of physiology that began around the turn of the 19th century. Although the brain had long been regarded as the seat of the mind, it was F. J. Gall who, in the late 18th and early 19th century, first suggested that the study of physiology, and specifically the structure of the brain, was a more appropriate method for studying mental functioning than was philosophical analysis (Young, 1968, 1970). With his doctrine that cerebral structure was directly correlated with mental faculties, he introduced the idea that psychology could be scientific rather than philosophical.

Although he was not an anti-dualist and insisted (as dualists do) that the brain was the means and not the cause of mental functioning (Robinson, 1982, 905), he nonetheless had introduced (as had associationism) an element undermining traditional dualism. With his phrenological theories, Gall denied the idea that mind is something separate and distinct from nature and that physiology was thus irrelevant to an understanding of mental processes. His most important contribution, therefore, was in bringing mind into the province of nature and hence of scientific analysis (Young, 1970). Moreover, he introduced the important idea of a functional psychology that studies individual differences and biologically significant behavior, rather than the abstract general principles addressed by the old metaphysical, introspective psychology (Young, 1970).

Contemporaneous with Gall was Cabanis, who, in his lectures on physiological psychology in 1796-1797, went an important step further than had Gall in denying the categorical separation of mind from brain. He argued that soul (or mind) is not an entity but a faculty of the nervous system and that thought is the function of the brain. He believed that all intellectual processes derive ultimately from simple sensibility, a property of the nervous system, and thus his psychology was a reductionistic as well as a physicalistic one. He also outlined a hierarchical system of nervous functioning, and thus of behavior, that took on a renewed and important role in psychology when it was "rediscovered" by Hughlings Jackson later in the 19th century (Margetts, 1953, 131).

The concept that had dominated the new physiological psychology throughout the 19th century (and later) was that of the reflex, the physiological "equivalent of the association process" (Burnham, 1986, 71). In its most general form, it was the deterministic notion of the cause-and-effect relationship between a sensory stimulus and a behavioral response; more specifically, it referred to the notion of a reflex arc through the nervous system

from sensory to motor nerves. Descartes had presented a model of reflex behavior in his description of the body (especially of "mind-less" animals) as a machine operated by the movement of animal spirits through the nervous system, activating parts of the body. Descartes' conception of the nervous system as a hydraulic apparatus was replaced in the 19th century by a view of the nervous system as an electrical system composed of a switchboard (the brain) and conductor (the nervous system) (Lowry, 1970, 66) (and replaced again in the 20th century by the model of the nervous system as a computer); but the basic reflex model persisted and became the foundation for the new physiological psychology, precisely because it provided a thoroughly mechanistic and deterministic (and hence "scientific") understanding of behavior.

Closely tied to the notion of reflex behavior, and particularly important for psychology, was the growing knowledge about localization of function in the nervous system and especially the brain. Gall had introduced the idea that mental functions might be correlated with brain structure, but the details of his system, and even the idea that abstract psychological traits or behaviors could be localized, ultimately were shown to be wrong. Nevertheless, the study of sensorimotor reflex actions gradually taught physiologists that certain processes associated with mental functioning could be localized, and these discoveries set off a debate (not yet resolved) about whether the brain, and by extension the mind, functions primarily as an aggregate of neuronal parts or as a unified whole -- the larger issue being whether an atomistic model of mind could adequately account for mental functioning, or whether it was necessary to retain some form of the old notion of mind as a unity, or functioning whole.

The localization of specific nervous system functions began with the discovery, by Bell and Magendie, that nerves in the spinal column are differentiated by function, the dorsal ones being primarily the sensory nerves, the ventral ones primarily motor. This work, together

with Helmholtz's studies of the velocity of nerve impulses, strengthened the model of sensorimotor behavior as a deterministic system of input signals, central processing, and output signals. Müller demonstrated further that individual nerves are differentiated according to function, a stimulus (of whatever kind) to, say, the optic nerve always producing a sensation of light.

The predominant idea during much of the mid-19th century was that the nervous system was divided into two main components, the subcortical areas being devoted to sensorimotor reflex functioning, the cerebrum, on the other hand, being the sole region where thought takes place. Flourens had been the major proponent of this division of function, and he had particularly argued against Gall's system of localization, believing instead that the mind functions, in all its various modes of operation, throughout the cerebrum as a whole (Robinson, 1978, 498-500; Young, 1970).

Following Flourens, Laycock and then Carpenter modified this view in a significant way when they extended the concept of reflex activity to the cerebral hemispheres as well as the lower nervous system. They both accepted Flourens's view that the cerebrum as a whole is the center for thought and mental activity, and thus they rejected Gall's system of specific localization; but Laycock believed that principles of law and continuity demanded that the same mode of functioning be applied to the entire nervous system: He "formulated a theory which stressed that the nervous system must be seen as one continuous series of structures obeying one law, that of the reflex" (Young, 1966, 25). He adopted a view of mind as a property of the nervous system, which appears at a certain level of complexity of organization, and he conceived of the reflex activity of these higher levels as being purposeful and adaptive behavior, not mere mechanical reaction (Danziger, 1982). On the other hand, Carpenter (whose views I will describe in more detail in Chapter 3) took the more dualistic view that an independent principle -- Will -- interacted with the

cerebral centers to direct the volitional functioning of the organism as a whole. He elaborated on Laycock's views of cerebral reflex activity by describing unconscious or automatic thought and behavior as being the reflex functioning of the cerebral centers when the Will is unable to exercise its usual control over them. This hypothesis of "unconscious cerebration," or the physiological reflex activity of the cerebral hemispheres, remained an important and influential view of unconscious mental functioning throughout much of the rest of the century.

Physiological interpretations of mental processes took a new turn, however, when new studies began to revive Gall's general principle of localization in the cortex of specific mental functions. In 1861 Broca was able to demonstrate clinically the correlation of speech dysfunction with damage to an area of the left frontal lobe. In 1870 Fritsch and Hitzig demonstrated, with electrical stimulation studies, that movements of limbs could be localized in the cortex, and Ferrier, using similar techniques, mapped out the motor areas of the cortex in much detail. Such studies encouraged new theorizing about localization of mental functioning, but an important new approach appeared when Hughlings Jackson, influenced by Laycock's theories of cerebral reflex functioning and Spencer's evolutionary doctrines, produced what was, in essence, a reconciliation of the two diametrically opposed views of atomistic localization and holistic unity of mental functioning (Churchland, 1986, 161-162). Jackson proposed that the nervous system was a hierarchy of levels, developed over the course of evolution, from the oldest, which are the simplest, most organized, most automatic, and most stable functioning, to the newest, which are the most complex, least organized, least automatic, and least stable (Jackson, 1884). Moreover, it was also a hierarchy of localization, such that the lower, older levels are the most localized, and the newer, more complex ones are the more diffuse (Prince, 1898). Evolution resulted in the addi-

tion of higher and more complex processes that ordinarily govern the organism's behavior, but dissolution could occur when higher levels of the nervous system were impaired or inhibited by disease, and lower, more stable levels were thereby freed to take over the organism's functioning.

J. S. Mill expressed the view of most of the early advocates of a scientific approach to psychology when he said that

no rational person can doubt the closeness of the connexion between the functions of the nervous system and the phenomena of mind, nor can think any exposition of the mind satisfactory, into which that connexion does not enter as a prominent feature.
(Mill, 1843/1846, cited in Young, 1970, 119)

Physiological conceptions of mental functioning had become so predominant by the end of the century that a physiologist felt confident enough to say: "It is now known that memory is a material record" (Hurd, 1898, 351). But physiology was not alone among the sciences in contributing to the naturalization of mind in the 19th century. Physics, as the most fundamental and advanced of the sciences, had established the deterministic world view that became the model for all other aspiring sciences; but, more specifically, it was the doctrine of the conservation of energy that had the most important influence on the development of the new psychology. Because it depicted the physical world as a completely closed and self-contained causal system, it became increasingly difficult to reconcile this doctrine with the old dualistic view of a nonphysical mind that influences, by interacting with, the physical world. The notion of mental causality therefore became increasingly intolerable to many scientists and psychologists; Hughlings Jackson expressed their views when he said that, if he could be convinced that mind had interacted with and influenced matter, he would be forced to give up neurology altogether, "the implication being that dualism means the negation of law" (Engelhardt, 1975, 145).

The doctrine of the conservation of energy not only helped to undermine the old conception of mind; it also

provided material for the new conception. The rapidly developing science of thermodynamics, and the resulting spread of the concept of energy as the motive power behind all physical phenomena, had an important impact on ideas about mind. Scientists began to view mind, not as an active entity, but as the energy, or motive power, behind an organism's functioning. In particular, the physicist Fechner, now often considered the founder of experimental psychology, introduced the concept of the conservation of energy into psychology. According to Fechner, psychophysical activity is a form of energy: Each person has a certain finite amount of physical energy, and the function of the nervous system is to transform this into psychophysical energy (Ellenberger, 1956, 207-208). His introduction of the quantifiable, experimental method into psychology, as well as the Weber-Fechner law of psychophysics that he developed, were the direct result of his attempt to demonstrate the relationship between the two forms of energy: a physical stimulus and a psychophysical sensation. Fechner's work thus had an important influence on the subsequent direction of psychology, not only methodologically, but also conceptually: "After Fechner, the concept of 'mental energy' was adopted by many authors, and by the end of the 19th century it was current in psychology and neuropsychiatry" (Ellenberger, 1956, 207). Within a few years, an academic psychologist such as Sully would say that it was "proved...that the amount of mental activity possible at any time is limited by the quantity of disposable energy in the brain" (Sully, 1884, 12); and a neurologist such as Weir Mitchell would propose that nervous disease was caused by a depletion of nervous energy brought on by too much mental work (Kenny, 1986, 131).

One of the strongest blows to the old psychology, however, came from biology and from Darwin's theory of natural selection in particular. As Murphy, in an early history of psychology, acknowledged, late 19th-century Darwinism "probably did as much as any single factor to shape the science [of psychology] as it exists to-day"

(Murphy, 1929, 122); and it was especially influential in late 19th-century British psychology, where it was "the dominant tendency" (Murphy, 1929, 187). Earlier evolutionary theories contributed to the general climate of thought undermining old ways of thinking about mind. For example, the uniformitarian hypothesis of Lyell and others in geology and the evolutionary ideas of Lamarck and Chambers in biology all encouraged the growing faith in the continuity and lawful order of nature, in opposition to the old principle of catastrophism and its associated ideas of divine intervention, miracles, capriciousness, and volition. It was Darwin's massive amount of evidence for the transmutation of species by natural selection, however, that finally brought widespread conviction among scientists and, also, that stimulated scientists to begin to view mind and mental phenomena in evolutionary terms.

The primary effect of Darwinism was to call into serious question previous assumptions about the uniqueness of human minds as opposed to lower forms of life. Human mental processes began to be viewed as being on a continuum with those of other forms of life, differing only in degree of development, not in kind. Psychology began to shift from an emphasis on studying the various faculties of mind to studying mental phenomena as biological, functional processes enabling the organism to adapt most beneficially to its environment. Darwinism reinforced the move away from the introspective study of mind to the observational study of behavior; but it also initiated the expansion of scientific psychology as a primarily physiological science to a biological one in which comparative and developmental studies became prominent. Darwinism also had the important effect of undermining much of what remained of any teleological thinking among psychologists. By proposing natural selection as the mechanism for evolution, Darwin removed the need to postulate divine or even human volition as a driving force behind nature's processes. Because Darwinism challenged the argument from design that had long

been cited as supporting the idea of a divine Creator, it "thus undermined the cooperative relationship between science and theology" that had existed prior to the mid-19th century (Mackenzie & Mackenzie, 1980, 150). Before Darwin, psychophysicologists such as Carpenter and Laycock could maintain dualistic, religious, or teleological ideas within their scientific systems; after Darwin, mechanistic determinism became the only viable scientific option for most psychologists (Danziger, 1982, 134).

Although Darwin's contribution to the development of psychology is more widely recognized today, during the late 19th century the work of Herbert Spencer was equally, if not more, important in infusing psychology, sociology, anthropology, and other human sciences with evolutionary principles. Spencer adopted von Baer's thesis of embryonic development from a homogeneous, indeterminate, simple state to a heterogeneous, determinate, and increasingly complex and organized state; and he then attempted to show that the universe in all its many aspects is developing and progressing in accordance with this one overriding principle (Copleston, 1949/1966; Young, 1970). It was an attempt to develop a universal, "synthetic philosophy":

Spencer, the prophet of evolution, sought to encompass the behaviour of all phenomena within a single, grand, all-inclusive principle of rhythmic, relentless movement from the homogeneous to the heterogeneous to the homogeneous again -- Evolution and Dissolution. (Eisen, 1968, 36)

The concept of dissolution -- the idea that integrated parts of a complex system could fall apart -- made Spencer's system a cyclical one, of both progress and regress; but the overall direction of evolutionary development was assumed to be toward progress. Spencer's system had widespread influence, perhaps most notably on Hughlings Jackson, whose ideas about the evolutionary development and hierarchy of the nervous system, as well as its dissolution under pathological conditions, derived directly from Spencer (Jackson, 1884).

Unresolved Dilemmas

By the end of the century, the attempt to apply to psychology the principles of scientific naturalism -- in other words, to establish that mind is a natural phenomenon, in some sense continuous with matter and not only subject to but also produced by the same laws of nature governing physical phenomena -- had been largely successful, at least in the eyes of most scientists. Scientific principles of mechanistic determinism and reductionistic atomism had been pitted against the old "commonsense" or humanistic principles of teleology, meaning, and volition, and the former had apparently emerged victorious, since psychology was now almost wholly physiological, biological, or clinical, experimental or observational, and positivistic and objective.

Nevertheless, despite the immense power of science and its firm hold on the 19th-century mind, humanistic principles were not easily relinquished. Throughout much of the 19th century, the conflict between scientific determinism and human volition remained a central dilemma of the age (Chadwick, 1975, 204-205; Daston, 1978, 1982). The principle of continuity, together with the law of the conservation of energy, had led inexorably to the conclusion that humans were, like Descartes' animals, physiological automata: The automaton hypothesis stated that all physical events have a physical antecedent and thus that there must be an unbroken physical causal chain (Gray, 1968). For many 19th-century scientists, the introduction of volition (or any mental state) as a cause at any point in that chain violated the principles of continuity and conservation of energy, because (they said) it required the introduction of new energy into what was otherwise a closed system. Causative volition was therefore a nonsensical concept, according to Clifford, Huxley, Jackson, and numerous other scientists. Moreover, in the eyes of many scientists, allowing for the concept of volition in psychology was "a back-door attempt to reintroduce an active ego or soul into the new psychology" (Daston, 1978, 202). Volition became "a

taboo concept" because scientists thought "it would pull psychology back to its prescientific, mystical days" (Decker, 1986, 52). One psychologist (Ladd, 1892, 52), noting that a physical scientist had recently "affirmed the human will to be a vera causa and to originate changes that run throughout the entire physical universe," declared that had he (Ladd), a psychologist, made such a statement, he would "be well beaten and ostracized from the sacred circle of so-called 'scientists'."

Yet the concept of volition could not be relinquished without also dispensing with all notions of ethics, individual responsibility, and purposeful behavior:

Even the most vigorous exponents of a naturalist psychology, such as Huxley and Clifford, felt themselves obliged somehow to reconcile traditional notions of free will and volition with the deterministic implications of a "scientific" psychology. (Daston, 1978, 197)

The task proved a difficult one, however; as Brown (1947, 53-54) expressed it, Huxley

is sure that every phenomenon has its efficient [physical] cause..., yet he is sure of the power of the will at least in part to determine or condition human phenomena. There, on the horns of a great dilemma, he hangs.

There also hung many of his colleagues and contemporaries.

Another major problem that the new psychology not only left unresolved, but actually exacerbated, was the question of whether the nature of mind is best understood when mind is viewed holistically or when it is viewed atomistically. The problem, which may be labelled the conceptual one of unity versus multiplicity, has been an underlying theme in philosophical and scientific debates throughout history, the wave-particle debate in physics about the nature of light being just one example. It is equally important in the history of psychology: It was a prominent theme in the surveys of two early historians of the field (Brett, 1921; Murphy, 1929). Flugel (1933/1964) and, more recently, Watson (1973) enumerated some antithetical tendencies or "prescriptions" in

psychology, which in Watson's view have served in the place of a guiding paradigm in a pre-paradigmatic psychology. In many of these debates in psychology (such as between structuralism and functionalism, content and act psychology, associationism and gestalt psychology, or even materialism and dualism), the underlying issue is often the basic one of whether to view the nature of mind as fundamentally a unity or a multiplicity. Is it, in other words, an indivisible whole that is the cohesive, organizing factor of mental life, or is it a structure built up from innumerable elements or experiences? Is mind the sum of the parts, or the factor drawing the parts together in the first place? In brief, is mind best understood from the bottom up or the top down?

In the 19th century, this problem was a crucial one in the conflict between the old dualistic psychology and the new psychology; it was a battle "which pitted the metaphysical 'unity of self' against the scientific 'multiplicity of selves'" (Robinson, 1978, 349). The first was the traditional notion of self, derived from Plato's concept of the soul as a simple, noncomposite, indivisible unity. Even an associationist such as J. S. Mill found this a compelling idea:

There is a something I call Myself, or...my mind, which I consider as distinct from these sensations, thoughts, etc.; a something which I conceive not to be the thoughts, but the being that has the thoughts. (Mill, 1843/1846, 42)

On the other hand, Mill went on to say that we can have no knowledge of what this something is ("although it is myself") but only of "the series of its states of consciousness" (Mill, 1843/1846, 42). For an increasing number of 19th-century scientists, that knowable "series" was the only conception of mind that science needed, especially since the view of mind as a multiplicity conformed much better to the analytic method of science and the atomistic view of matter in 19th-century physics than did the unitary, indivisible soul.

Nevertheless, most psychologists recognized that the multiplicity view of mind, although it did fit com-

comfortably with the basic principles of science, did not fit comfortably with human experience and, moreover, that it left some fundamental problems unresolved. As McDougall later said, the basic problem for all theories of mind is "What holds consciousness together?"

(McDougall, 1911/1915, 264n, quoting C. A. Strong). How do we get psychical unity out of physical multiplicity, "the hanging together of a multiplicity of conscious processes in a numerically distinct or individual stream" (McDougall, 1911/1915, 164)? The question was not an idle one; it became particularly relevant when clinical cases and hypnotic experiments began to provide instances in which the multiple conscious processes within one body did not in fact "hang together."

The problem of the unity or multiplicity of mind was important to psychology in other ways as well. First, it raised yet again the unanswered problem of the relationship of psychology to science: whether psychology is in fact a science and, if so, what this might mean for our understanding of the nature of science. If mind is most basically a multiplicity -- that is, if it is a composite structure built up from numerous psychological elements -- then the analytic method of science was appropriate for psychology. If mind is most basically a unity -- that is, a noncomposite ontological unit which cannot be reduced to constituent elements without losing its essential nature -- or even both a unity and a multiplicity simultaneously, then the analytic method was inappropriate, or inadequate. This in turn would mean either that psychology was not wholly a science and must be studied with methods other than (or in addition to) the analytic one, or that the scientific method must be conceived as something broader than quantitative analysis. As Murphy (1929, 415) suggested: "It may well be that psychology, precisely because of its concern with problems refractory to existing methods, will be the means of wresting from nature new methods and realities." The historian Brett, in the context of discussing the unity-multiplicity problem, said simply: "The central

problem [in psychology] is the question of method" (Brett, 1921, 148). Toward the end of the century, there was a resurgence among psychologists of those who insisted that the unity and wholeness of mind and experience was as fundamental -- or even more so -- to psychology as were discrete, analyzable units. To these psychologists (who included William James, James Ward, and G. F. Stout), when experience is "decomposed into elements" in the interests of conforming to the analytic scientific method, an important datum -- the whole -- has been lost (Daston, 1982).

Secondly, the unity-multiplicity problem was important because of its close relationship to the question of the nature of the relationship of mind and body, that is, whether mind is caused or causal. Could mind be understood adequately as a series or sum total of elementary units, such as simple ideas or sensations, or as a by-product of an evolving complex of simple physiological processes? Or was it itself a fundamental, elementary causal principle in nature? In essence, the unity/multiplicity debate, like that of volition versus determinism, was a variant of the primary problem facing scientific psychology: whether -- and how -- the concept of mental causality could be accommodated within a scientific understanding of nature.

The Solution: Parallelistic Psychology

Scientific psychologists had quickly worked themselves into an impasse: They had set up an implacable dichotomy of naturalistic (or physicalistic) and supernaturalistic (or dualistic) ideas about mind, but most of them were unable to throw themselves wholeheartedly on the side of naturalism as they had defined it, which logically required the denial of such "supernaturalistic" ideas as volition and the unity of human personality and which led to such unacceptable ideas as the automaton hypothesis and the subordination of psychology to physiology. Unfortunately, the rigidity of the dichotomy -- the identification of particular categories of ideas

as "supernaturalistic" and hence unacceptable within science -- precluded any serious or widespread consideration among psychologists that the solution to the paradoxes and difficulties they found themselves confronting might lie in a close and critical examination of prevailing assumptions about both naturalism and supernaturalism. The result, as was described in Chapter 1, was a decision worthy of Solomon, half of human experience being assigned to science, the other half to religion, philosophy, and other humanities. The arrangement seemed to work quite well for all parties concerned, since neither side needed to be troubled any longer by questions, problems, or conflicting facts raised by the other side. For psychologists in particular, this methodological or conceptual parallelism meant that they need no longer be troubled by questions, problems, or phenomena that threatened the status of psychology as a science.

This desire to purge psychology of any elements threatening its eligibility as a science helps explain why psychologists (of both the 19th and 20th centuries) embraced the various forms of positivism (Boring, 1950, 655) with such enthusiasm: "No other science had started off by defining its aims in a framework of positivist psychology" (Danziger, 1979, 224). The term "positivism" has several meanings, both general and specific. In its general form it refers to the belief that the limits of knowledge are fixed at what is observable and that therefore metaphysics and associated speculation must be eliminated in favor of scientific observation; modern positivism in this form may be said to have originated with Hume and to have culminated in the logical positivism of Mach and the Vienna Circle. In its specific form (perhaps better labelled "Positivism," with a capital "P"), Positivism was formulated in the early 19th century by Comte, who expanded the general form of positivism into a religion of humanity and a theory that human thought and history have evolved through three stages, from primitive theological thinking, to

metaphysical explanation, to the most advanced stage, that of scientific description. Positivism, whether of the general kind or of the particular Comtean variety, provided psychologists with the rationale for eliminating from psychology large and troublesome questions about the nature of mind, about the conflict between the scientific principle of determinism and the human experience of volition, or about the causal relationship between mental and physical processes. Such questions belonged to metaphysics, not science.

The influence of positivism on psychology was tempered, however, by the new conceptual parallelism. In France, Taine, whose immense influence had made French psychology strictly naturalistic and positivistic (Robinson, 1978, 50-67), had also provided the rationale for an autonomous science of psychology. Robinson (1978, 59) has pointed out that, despite his firmly physicalistic belief that personality depends on molecular movements in the brain, Taine also admitted that "the language of neurophysiology and the language of consciousness are not meaningfully interchangeable...the one cannot be reduced to the other." Similarly, in England, Hughlings Jackson's doctrine of concomitance (as described in Chapter 1) helped establish a parallelism that freed psychologists to study psychological behavior and processes without needing to relate them back to their physiological substratum. This methodological parallelism, it should be emphasized, was quite different from the metaphysical parallelism of, say, Leibniz or of those scientists (including Jackson) who, influenced by the doctrine of the conservation of energy, insisted that mind and brain had to be closed causal systems that were correlated but did not interact. Instead, this parallelism was a methodological, conceptual, or linguistic one only; it allowed for nearly any metaphysical position on the relationship of mind and matter, insisting only on the conceptual and methodological separation of them. It was purely a "pragmatic theory of psycho-physical parallelism," which provided "a disciplinary division between

physiology and psychology" (R. Smith, 1981, 271). Thus, it allowed psychologists the "luxury of ontological agnosticism while they got on with their work" (Young, 1970, 233).

It also helped change the nature of that work. Biological functionalism began to replace physiological reductionism as the predominant approach to psychology. Because the positivistic parallelism had freed psychologists from the need to address the mind-matter question theoretically (and in fact had rejected it as totally inappropriate for psychology to address), and because the methodological parallelism had freed them from the need to address the mind-matter problem empirically, psychologists turned more and more to the study of the function of psychological behavior in an organism's interaction with and adaptation to its environment.

An Illustrative Example: The Problem of the Subconscious

The general shift in psychology from a physiological reductionism to a more purely psychological functionalism was evident in changing ideas about subconscious processes. Although the concept of unconscious phenomena was an old one among philosophers (Ellenberger, 1957; Margetts, 1953; Whyte, 1960), the notion that such phenomena could be studied systematically and that they might have important implications for an understanding of conscious phenomena did not become widespread until the 19th century. This burgeoning interest in the unconscious had its roots in the discovery of mesmeric phenomena by Mesmer and his followers in the late 18th and early 19th centuries; and it grew concurrently with the development of scientific psychology. It was spurred on by physicians such as Elliotson, Esdaile, and Braid, who studied mesmerism and hypnosis in the mid-19th century, and it was revived during the last two decades of the century, particularly after Charcot took an interest in hypnotism. Perhaps most important, however, was the growing public interest in subconscious phenomena, fueled by von Hartmann's widely read book, The Philosophy

of the Unconscious, first published in 1869.

This growing awareness of subconscious phenomena had far-reaching effects on the development of psychology, primarily because subconscious phenomena raised important questions about the definition of mind and thus of psychology. Traditionally mind had been equated with consciousness; the demonstration that complex behavior and, apparently, complex mental processes occurred without a person's conscious awareness suggested that mind was not coterminous with consciousness. The problem then arose of how mind should be defined, and whether and how to fix a boundary between mental and physiological processes. Moreover, if not all mental processes occur within consciousness, then psychology's traditional method of the introspective examination of mental content was inadequate. From this grew the debate about whether psychology should be the introspective study of mental processes or the observation of behavior.

The development of ideas in the 19th century about the subconscious thus mirrored the development of ideas about mind and psychology in general. As with psychology in general, when scientifically oriented thinkers first turned their attention to subconscious phenomena, the predominant interpretation was a physiological one: "The unconscious took on a neurological veneer which was in keeping with the somatic orientation of the day" (Margetts, 1953, 133). Because mind was still largely identified with conscious awareness, unconscious phenomena were interpreted as nervous system reflexes. Mill, for example, described unconscious mental processes, or "the apparently suppressed links in a chain of association," as being "the chain of causation being continued only physically, by one organic state of the nerves succeeding another so rapidly that the state of mental consciousness appropriate to each is not produced" (Mill, 1884, 2:22-23). In 1842 Braid introduced a physiological interpretation of mesmerism that offered an acceptable scientific alternative to the "occult" ideas about mesmeric fluid then prevailing. He suggested that

the hypnotic trance was the result of exhaustion of the nervous system brought on by the prolonged fixation of the subject's attention during the induction procedure:

Fixed attention leads to suppressed respiration with decreased oxygenation of the blood and accumulation of carbonic acid. These are the pneumo- and hemodynamic changes that cause the "derangement of the state of the cerebro-spinal centres"...in the hypnotic state. (Kravis, 1988, 1193; quoting Braid)

In 1853 Carpenter proposed his famous hypothesis of unconscious cerebration: Unconscious mental processes or behavior were the product of the reflex action of the cerebrum in the absence of the Will's conscious control or volition (Carpenter, 1853, pp. 811, 819) Even as late as 1880, Heidenhain published what became an influential physiological theory of hypnotism (Heidenhain, 1880/1882). Like Carpenter, he believed that the phenomena of hypnotism were physiological reflexes; but unlike Carpenter, he believed that unconscious phenomena occur, not because of a reflex action of the cerebral centers, but because of a reflex that completely bypasses the cerebral centers. In his view, hypnotic induction involves the monotonous stimulation of facial, optic, or auditory nerves, which then causes the inhibition of ganglion cells in the cerebral cortex and, hence, the suppression of consciousness.

As with psychology in general, however, increased knowledge about subconscious phenomena led many psychologists and physicians to recognize the inadequacy of purely physiological approaches. In particular, it became clear that many subconscious acts were not simple reflex responses but were often complex performances requiring memory, judgment, or complicated calculations. Many subconscious actions seemed to be no different in kind from conscious ones, since to the outside observer a subconscious and a conscious act could appear identical. Whereas those who had proposed physiological hypotheses had emphasized the differences between conscious and unconscious states (namely, the absence of consciousness in the latter), later psychologists emphasized their similarities -- especially the role adaptive behavior

played in both states. The implication of these similarities was that subconscious acts were not simply physiological reflexes, but involved "mental" processes of some sort, with the sole difference being that they occurred outside instead of within conscious awareness. As a result, many psychologists during the last two decades of the century -- particularly clinicians working directly with patients who spontaneously exhibited subconscious functioning -- began to adopt a more purely psychological, functional, or dynamic approach to subconscious phenomena. One historian summarized psychiatry's development in the late 19th century as a change in emphasis "from psychotic, supposedly organic, conditions to neurotic 'functional' conditions" (Mora, 1965, 156). Even Braid had exemplified the shift in emphasis that would occur later in the century among students of subconscious phenomena in general. Although "Braid insisted on a physiological substratum" (Kravis, 1988, 1203), his later ideas showed increasing attention to the role of monoideism (or the fixed attention of the subject on a particular idea) and of suggestion. This shift to a psychological emphasis was by no means universal; the debate between those who viewed unconscious processes as physiological automatisms and those who viewed them as mental processes outside conscious awareness continued throughout the 19th century, and later (Prince, 1929/1939, 627). Nevertheless, among those late 19th-century psychologists and physicians who were most actively involved with research on subconscious phenomena, psychological approaches clearly dominated during the later years of the century.

The Primacy of Matter

It is important to emphasize, however, that neither in psychology in general nor in the study of subconscious processes in particular was the shift to a predominantly functional, psychological approach in any way a repudiation of the fundamental principle, elaborated in the earlier physiological stage, that physiological processes

are the basis or substratum for psychological ones. The autonomous, parallelistic psychology had derived directly from physiological psychology, the primary difference being that the former assumed, rather than addressed directly, the underlying concomitance, or correlation, of physiological and mental processes. Once this concomitance seemed firmly established, and once it was widely accepted, on the basis of this concomitance, that the application to psychology of the scientific concept of law and of the experimental method was legitimate, then psychologists felt secure enough to adopt a working parallelism and study mental processes independently, "in their own coherence."

They did not, however, feel secure enough to question the adequacy of the doctrine of concomitance that they had inherited from physiological psychology. With regard to the precise nature of the relationship between mental and physical phenomena, the doctrine should have been a purely neutral statement; one of its principles, as stated by Hughlings Jackson, was simply "that for every mental state there is a correlative nervous state" (Jackson, 1931-1932, 2:72). Jackson himself had insisted that his concern with the problem of mind and matter was purely methodological: "I do not trouble myself about the mode of connection between mind and matter. It is enough to assume a parallelism" (Jackson, 1931-1932, 1:52). However, even he later modified that neutrality when he went on to insist that, because of the law of the conservation of energy, there can be "no interference of one with the other" (Jackson, 1931-1932, 2:72). Few psychologists, in fact, considered the doctrine of concomitance to be a neutral one. As was pointed out in Chapter 1, physiological psychologists in the late 19th century (as well as later) concentrated almost exclusively on studies in which the nervous system was the independent variable and mental phenomena the dependent one. Not surprisingly, the conclusion was that mind is in some sense dependent on brain. As a result, 19th-century psychologists held some version of a dual-aspect

or epiphenomenal view of mind: Mind, in other words, was a property or function of matter (or, along with matter, a property or function of some "Unknowable" substance) that evolved with matter and emerged as consciousness at a particular level of complexity. Few questioned whether the demonstrated correlation between mental and physical processes had also established their causal relationship.

In short, throughout the last half of the 19th century -- scientific psychology's formative period -- two principal assumptions were established as the basis upon which modern psychology would develop. On the one hand, the naturalization of mind eventually led to the assumption that mind is ultimately derived from matter and, thus, somehow secondary to it and the laws of the physical world. On the other hand, the unresolved conflicts and paradoxes about the nature of mind, which had increased rather than lessened during this naturalization process, led to the agnostic view that the mind-matter problem is an unanswerable one, as well as to the positivistic view that it is in any case an inappropriate question for science. In other words, modern psychology was built on the paradoxical premise that the question of the nature of the relation of mind to matter both has already been basically solved and is unresolvable. The former assumption, however, would seem to credit science with too much accomplishment; the latter, with too little.

In the following two chapters, the views of 11 19th-century scientists will be examined in some detail to illustrate the ways in which each contributed to the development of this paradoxical, parallelistic psychology.

CHAPTER 3 PHYSICAL SCIENTISTS

Introduction

It is a truism to say that no one works in isolation. To understand the motivations, methods, and purposes of anyone's work -- whether that person is a scientist, philosopher, artist, or worker of any sort -- it is as necessary to study the context in which the person was working as it is to study the person's own work. Thus, to understand what Myers as a psychical researcher was trying to accomplish, one must have some understanding of how his contemporaries approached the problems with which he was concerned. Against this background, one can better see both what Myers accepted in the thinking of his contemporaries, and also what he rejected; and one can begin to understand more clearly to what extent Myers approved of and supported the new psychology and where he diverged and dissented from it.

In Chapter 2 I outlined in a general way scientific and other intellectual developments in the 19th century that influenced the development of the new psychology. In this and the following chapter, I take the somewhat more specific approach of examining the thinking of individual scientists who were among those particularly instrumental in defining the direction that scientific psychology took. These chapters are neither an exhaustive nor even a completely systematic survey of such individuals. The individuals discussed were chosen for several reasons. The theme and purpose of Myers's psychological studies was to help and encourage the development of an empirical method for studying the relationship between mind and matter, and he believed that the study of subconscious psychophysiological processes would be the most productive approach to this question. I have therefore chosen to examine some contemporaries of Myers who wrote prominent and important essays and books dealing with the question of the mind-matter relationship, or with subconscious phenomena -- and usually with

both. Because the "birth" of the new (that is, scientific) psychology may be dated to about the time of the 1855 publication of Bain's Senses and the Intellect and the 1860 publication of Fechner's Psychophysics, and because Myers went up to Cambridge as an undergraduate in 1860 and died early in 1901, I have limited my choices to individuals who published much of their important work on these topics between about 1860 and 1900. This is not to say that works published prior to that period had no important effect on either scientific psychology or Myers; but by examining individuals whose major work was contemporaneous with Myers's adult years, I hoped to gain an understanding of the immediate intellectual context that drove him to address the problems and to develop the ideas that he did. Finally, since Myers himself hoped and believed that the most valuable aspect of his work would be its usefulness in promoting empirical, scientific research, I have examined only scientists of the period, and none of the many philosophers, theologians, and other writers who considered these questions of mind-matter relations and subconscious phenomena. Nonetheless, one should always keep in mind that in the 19th century, the distinction between, say, a scientist and a philosopher -- to say nothing of a psychologist and a physiologist -- was often a somewhat arbitrary one. The most characteristic feature of 19th-century intellectual life was the astounding eclecticism of its leaders. As Boring (1950) emphasized, most people working and writing on psychological topics in the 19th century were philosophers, physiologists, and physicists, and many of them worked and wrote in all these areas.

The 11 individuals discussed in this and the following chapter illustrate particularly well the two main currents of thought that I described in Chapter 2 as influencing the development of psychology in the 19th century. On the one hand, they all supported the naturalization of mind, invoking the premier scientific principle of continuity to establish that mind is a natural phenomenon to the study of which the concepts and methods

of science can be applied. Thus, a central theme in their writings was to demonstrate that mind is a function of the nervous system, that mind is invariably correlated with brain processes, and that the foundations of psychology lie in physiology. Closely related to this belief that mind and psychology should be brought within the domain of scientific inquiry was an intense antagonism among most of these scientists to old dualistic, metaphysical, or religious and theological ways of defining or studying the mind. These individuals thus contributed importantly, each in his own way, to the increasingly rigid dichotomization of the new scientific naturalism and the old metaphysical supernaturalism or dualism. Indeed, the more radical of them exemplified what was described in Chapter 2 as Houghton's first stage of Victorian thought: Their writings were often characterized by an intense and even acrimonious partisanship, which had the positive effect of launching psychology firmly down the scientific path, but also had the negative effect of keeping that path a straight and narrow one.

On the other hand, many of these scientists (particularly the more moderate and thoughtful of them) also recognized the inadequate or even paradoxical positions toward which an extreme naturalization of mind led, and so they additionally supported and contributed to the development of the new conceptual and methodological dualism that gained momentum during the late 19th century. As their writings illustrate, this new dualism particularly took the form of a positivistic, conceptual separation of science from metaphysics, religion, or the humanities; but in psychology it also increasingly took the form of a linguistic or methodological parallelism that conceptually separated physical and mental processes and thus allowed psychology to develop as an autonomous discipline with its own unique role in science, variously conceived as the study of behavior, experience, or psychophysiological, adaptive functioning.

Having just acknowledged that disciplinary distinc-

tions in the 19th century were more arbitrary than they are now, I have nevertheless attempted to categorize the individuals discussed in this and the following chapter as psychologists or non-psychologists. In this chapter I discuss 6 scientists who are (and were) not considered primarily psychologists, but whose writings on the problem of reconciling mind and science had a wide general audience in the 19th century and who thus both reflected and influenced general trends of thought affecting psychology. In Chapter 4 I will discuss 5 scientists who have been more readily identified as psychologists and whose writings have thus perhaps had more immediate and specific impact on professional and academic psychologists. However, the arguably inconsistent decision to place, say, Henry Maudsley among the non-psychologists and Pierre Janet among the psychologists only underscores a major theme raised in this thesis: that the problem of bringing mind, or mental processes, within the framework of modern science raised issues of central concern to all branches of science, and not just to the one we have rather arbitrarily defined during the past century as psychology.

William Carpenter (1813-1885)

In beginning with Carpenter -- born in 1813, the oldest scientist among the 11 presented here -- I begin with an individual who vividly personified the intellectual transition from the old religious world view to the new scientific world view that defined the 19th century. An influential physiologist, Carpenter was also a lifelong Unitarian and theist, and the fundamental problem he addressed throughout his career was the problem represented by scientific psychology: the conflict between mechanistic determinism -- the central tenet of the new world view and seen as the defining characteristic of physical systems -- and volition -- the central tenet of the old world view and seen as the defining characteristic of mental systems. Yet, although Carpenter was an important pivotal figure in the history of

psychology, he is rarely discussed in historical studies of the field. His texts on comparative physiology, which were published in numerous editions throughout the last 60 years of the 19th century, were an important resource for, and influence on, those seeking to apply the principles of the physiological sciences to the study of mental functioning; but his defense of a modified form of Cartesian dualism bucked the contemporary trend to undermine and abandon the old dualism. Thus, although he became widely known among psychological scientists for his hypothesis of unconscious cerebration in particular, they were perhaps less willing to condone or even acknowledge his more general theoretical contributions to psychology.

The most important key to understanding Carpenter's views on human mental functioning is to recognize that he made a careful and specific distinction between mind and will. Mind, for Carpenter, referred to the functioning of the cerebral hemispheres, that is, to the mental or psychological processes associated with cerebral activity. This cerebral activity, however, could have two quite different sources, or causes; as Carpenter expressed it, there are "two distinct agencies in the Mental constitution of each individual" (1874/1882, 9). On the one hand, it may be the result of purely physiological, reflex processes; on the other hand, it may be the result of the influence of the independent, freely acting will. Carpenter summarized the distinction when he said:

The actions of our Minds, in so far as they are carried on without any interference from our Will, may be considered as "Functions of the Brain"....[The Will is] a new and independent Power, which may either oppose or concur with the automatic [cerebral] tendencies.... [It is the] entity wherein Man's nobility essentially consists, which does not depend for its existence on any play of Physical or Vital forces, but which makes these forces subservient to its determinations. (1874/1882, 27)

Elsewhere, he asks whether the Will is "the mere resultant of the general (spontaneous or automatic) activity of the Mind, and dependent, like it, upon Physi-

cal antecedents? Or is it a Power...completely independent of these conditions...?" He answers that it is the latter, "a self-determining power" (1874/1882, 392).

Thus, in Carpenter's system there are three elements. The Body, which is the instrument of the Will (1874/1882, 120), serves "to bridge over the hiatus between the individual consciousness [the Will] and the External World" (1874/1882, 1). Specifically, it is the cerebrum that serves as this bridge. The Will is the individual consciousness, whose defining characteristics are its conscious awareness and its volition, or freedom from physical and mental deterministic laws. The term Mind, in contrast, denotes cerebral functioning, which may reflect either the activity of the body or the activity of the Will.

In one sense, therefore, Carpenter's psychology was a monistic one. He was explicit on the point that mind is the activity of the cerebral hemispheres and, as such, is a physiological function; he spoke of his "conviction...of the inseparable relation between Corporeal and Mental action" (1874/1882, 352) and criticized "those older notions of the essential independence of Mind and Body, which a truly philosophical Psychology can no longer accept as consistent with the fundamental facts of our composite nature" (1874/1882, 140). He insisted that the "vast body of Physiological evidence...proves the direct and immediate relation between Mental and Corporeal agency" (1874/1882, liv). Moreover, like an increasing number of other 19th-century scientists, he believed that the distinction between mind and brain was no more than a conceptual or linguistic one. In introducing his doctrine of unconscious cerebration, he said that "it seems a matter of no practical consequence, whether the doctrine be stated in terms of Metaphysics or in terms of Physiology -- in terms of mind, or in terms of brain" (1874/1882, 516). Elsewhere he explained that mind and body are "in different philosophical categories," because of the difference in their properties, but that they "are so intimately blended in their

actions" that they cannot be studied in isolation (1874/1882, 2). He defined psychology, therefore, as the study of the relationship between mental and physiological processes, saying that "so long as either the Mental or the Bodily part of Man's nature is studied to the exclusion of the other,...no real progress can be made in Psychological Science" (1874/1882, 2).

In another sense, however, Carpenter's system of psychology was also a dualistic one, differing from traditional dualism primarily by limiting the independent agency to Will, or conscious volition, instead of attributing all mental activity to an independent agency. The dualism, instead of being between all physical processes on the one hand and all mental processes on the other, was between physiological automatism and will. Carpenter defined automatism as all bodily and mental activities "determinately related to...previous bodily or mental activities," involving no "choice or self-direction on the part of the Ego" (1876/1888b, 287n). Will, on the other hand, was defined as the conscious, freely acting causal agency within each individual. The dualism, therefore, was essentially between those aspects of human nature that are subject to determinism and those that are free. Carpenter explained the purpose of his primary text on psychology, The Principles of Mental Physiology (1874/1882), to be the defense of two theses: first, that much mental activity is automatic and, as such, is the product of physiological processes; and second, that there is an "independent Power, controlling and directing that [mental] activity, which we call Will" (1874/1882, liii-liv). He thus maintained "a fundamental distinction" between these two types of mental activity (1874/1882, ix), the automatic activity being subject to mental laws, or "uniformities of succession," the free activity being "beyond and above this automatic exercise of our powers" (1874/1882, 250).

Carpenter saw these views as differing radically from either the materialist or the spiritualist philosophies of the 19th century. Materialism, he pointed out, recog-

nizes the physiological fact demonstrating mind's dependence on body; but it denies the experience of every human that mind (or, as he would say, Will through the mind) influences the body. Modern scientific research has "elucidate[d] the mechanism of automatic activity," but in so far as those who profess to be its expositors ignore the fundamental facts of consciousness on which Descartes himself built up his philosophical fabric...and repudiat[e] the doctrine (based on the universal experience of mankind) that the mental states which we call volitions and emotions have a causative relation to bodily changes, they appear to me to grasp only one half of the problem. (1876/1888b, 285-286)

Carpenter therefore explicitly rejected the position of colleagues such as Huxley and Tyndall, who believed that mental states are only "the outcome of the 'potentialities' of matter,...subject to physical conditions alone," and that "Man is only a... complicated... automaton" (1876/1888b, 284). Spiritualism,¹ in contrast, recognizes that universal human experience of a "self-determining power" (1874/1882, 5); but it gives this mind "a separate immaterial existence," denying that bodily conditions affect it (1874/1882, 7). Carpenter's system, however, recognized both types of agency, emphasizing the causal power of both the free will and the physical body. Carpenter's dualistic view of human mental functioning was a conscious attempt to resolve the conflict, so central in 19th-century thought, between determinism and free will -- between fixed and unvarying law, which was seen as the essence of science, and volition and individual responsibility, seen as the foundation of religion and ethics (see especially 1874/1882, chapter 20). This attempt at reconciliation led him also to reconstruct, in the light of Darwin's hypothesis of natural selection, Paley's old doctrine that design in nature testifies to the existence of a designer (1884/1888). These attempts, however, had little impact on the direction of 19th-century scientific thinking, because they in fact differed only in detail, not in essence, from the discontinuous, dualistic thinking that scientists were rejecting in increasing numbers. The importance of Carpenter's

writings to psychology therefore lay instead in his approach to abnormal psychology, and specifically his hypothesis of subconscious mental activity, which he called the doctrine of "unconscious cerebration."

The doctrine was built on the premise that mental activity is, in essence, physiological, being simply the translation of cerebral processes into sensations, ideas, and emotions (1874/1882, 111), and transcending physiological bounds only when the will interferes and alters the automatic, reflex behavior that would otherwise have occurred. Much of Carpenter's text on psychology (1874/1882) is devoted to describing this automatic, physiological nature of mental processes. In his chapters on habit and memory, for example, he claimed that memory is the result of physiological traces in the cerebrum (436) and that associations of habits of thought are determined by "nerve tracks laid-down" and associated reflex actions of the cerebrum or sensory-motor tracts of the brain (442). He suggested that both the establishment and the loss of memories depends on the brain's "nutrition," and he attributed temporary or partial memory losses to "local and transient alterations" in blood circulation (448). He concluded, therefore, that "Memory is essentially an automatic [that is, physiological] form of Mental activity" (465).

Similarly, he defined common sense as, psychologically speaking, "those original convictions or ultimate beliefs, which cannot be resolved into simpler elements" (471) but physiologically as "the automatic action of the brain" that results either from inherited racial habits (or "nerve tracks") or early and deliberate training of the mind/cerebrum (473). Imagination, creativity, and even genius are the products of "an automatic [physiological] operation...often carried on beneath the consciousness" (510); "even the highest intuitions of genius are the expressions of appropriate changes in the Brain-tissue" (644). Conversely, delirium and insanity are the products of pathological physiological conditions that result in both "a functional disturbance of the

Cerebrum" (660) and, especially, a "deficiency of volitional control" (658).

Nonetheless, according to Carpenter, all mental processes are also subject to the overriding influence or control of the will. Memory is "capable of being guided and disciplined by the will" (466). Although the will cannot control genius, it can indirectly influence and improve it by supplying the materials, focusing attention, and cultivating certain habits of thought (503-513). Even insanity, a "disordered physical action of the Cerebrum," can sometimes, especially in the early stages, be controlled and limited by the will (673-674). Nevertheless, although all mental processes are subject to the influence and control of the conscious, volitional agency, they are most fundamentally physiological processes.

Carpenter's dualism of Body and Will, or physiological deterministic causal agency and conscious, volitional causal agency, led directly to his doctrine of unconscious cerebration: All mental processes that are not caused by conscious, volitional activity can only be caused by the physiological reflex activity of the cerebrum. As Carpenter pointed out, because British philosophers had long equated mind with consciousness, there had been much controversy about the nature and even existence of unconscious mental processes, a concept which seemed to be a paradoxical juxtaposition of the terms "unconscious" and "mental." Carpenter, therefore, proposed to resolve this paradox by changing the assumption that mind should be equated with consciousness and substituting instead the idea that volition be equated with consciousness. He thus proposed the term "unconscious cerebration" to convey the idea that unconscious mental processes are the automatic, physiological reflex actions of the cerebrum, operating in the absence of any activity of the will (1874/1882, chapter 13).

Carpenter thus accounted for the wide variety of subconscious phenomena that attracted increasing attention during the half of the century, including hypnosis

(1874/1882, chapter 14), dreams and somnambulism (1874/1882, chapter 15), and mesmerism and the quasi-religion Spiritualism (1877; 1874/1882, chapter 16). All are explained as the suppression (by suggestion, sleep, or pathology) of the will and the release of the cerebrum to function automatically, usually under the influence of some dominant idea upon which the cerebral attention is focused. Mesmerism and hypnosis, for example, can be explained by the "physiological" principle that expectation and suggestion result in a "transient condition of the sensorium, which...we can pretty certainly assign to a reduction in the supply of blood caused by a sort of spasmodic contraction of the blood-vessels" (1877, 15), rendering the subject "a mere thinking automaton" (1874/1882, 553).

Carpenter's dualism of Body and Will also enabled him to explain phenomena demonstrating the influence of mind on body, such as the observation of "every medical man of large experience" that a patient's "undoubting faith" in the treatment can speed healing (1876/1888a, 257). For Carpenter, healings by faith, as well as the less common phenomena of stigmatization and the physical effects of hypnotism and somnambulism, are neither miracles nor fraud, but have "a definite Physiological rationale" (1874/1882, 689): Because ideas that are not under conscious control are simply cerebral states, then the phenomenon of a mental state producing a physical effect is simply the phenomenon of one physiological state affecting another. Stigmatization, for example, "presents no difficulty whatever," since bleeding "under strong emotional excitement...[is] a well-authenticated physiological fact" (1873/1888, 221-222).

Carpenter thus made two major contributions to the development of scientific psychology: First, in an age in which "scientific" (that is, physiological) accounts of mental functioning were gaining enormous prestige, Carpenter's hypothesis of unconscious cerebration to account for subconscious processes was readily embraced by many other scientists. Second, he was among the first

scientists, especially in Britain, to give systematic attention to the study of abnormal psychology. He described the study of abnormal mental phenomena as "probably the most promising field of Psychological inquiry" (1874/1882, liii), saying it is "absolutely essential to a due understanding of the relation of the Will to the Automatic activity of the Mind, and of both to the Physiological Mechanism" (1874/1882, lvii). Moreover, because he believed that the comparison of normal and abnormal mental states would demonstrate the essential dualism between automatic mental functioning and volitional activity, he also believed that the study of abnormal psychology might provide "the most satisfactory grounds which Science can afford" for belief in an "Infinite Mind and Will" (1874/1882, 28).

Nevertheless, it could be argued that Carpenter's contributions to scientific psychology were more negative than positive. First of all, Carpenter displayed a tendency not uncommon among 19th-century scientists heady with the prospect of explaining mental phenomena physiologically, and that was to present their speculations confidently, with little or no basis in fact, as likely explanations. Thus, he presented, as near-certain "explanations," the nerve-pathway hypothesis of habit and the trace hypothesis of memory (1874/1882, Ch. 10). He explained the reported ability to awaken at specified times as "a peculiar physical receptivity for impressions of some particular ideas" and as an "unconscious chronometry...connected with the sequence of the organic functions" (1874/1882, 582-583). Not only did he not present evidence for such explanations, but the explanations were also so vague as to be practically meaningless. He said that mesmeric states could "pretty certainly" be attributed to "a reduction in the supply of blood caused by a sort of spasmodic contraction of the blood-vessels" (1877, 15). He presented no evidence in support of this idea; but even if he had, this explanation of mesmerism failed to account for the truly important phenomenon -- what triggered the contraction in the

first place. In discussing a case of planchette writing in which a verified item of information, apparently unknown to the sitters, was given, Carpenter concluded that "the rational explanation of this obviously [my italics] is, that the writing was guided by the cerebral memory (so to speak), instead of by the conscious memory" (1877, 143). In this case, the assertion that the event was the result of a physiological cerebral reflex rested on the equally undemonstrated assumption that the sitters had in fact once known, but subsequently forgotten, the information. In short, for certain phenomena Carpenter preferred a rational explanation rather than an empirical explanation.

Perhaps more misleading than presenting groundless speculations as probable was his offering rudimentary or incomplete explanations as authoritative. For example, he, like many 19th-century psychologists, accepted the phenomenon of suggestion as the explanation for mesmerism, hypnotism, and Spiritualism, even though (as Myers frequently pointed out) they had merely substituted one unknown for another, since the mechanism behind suggestion was itself completely unknown. Even Carpenter's own hypothesis of unconscious cerebration, in which he attributed all subconscious phenomena to cerebral reflexes, was based on a very shaky foundation: Not only did he offer no evidence that such physiological reflexes had ever been detected, but his speculations were based on a severely limited range of observations. As Myers complained, Carpenter (and others) "stop their discussions, intentionally and avowedly, upon the threshold of our present subject [subconscious phenomena]" (Myers, 1885b, 61), primarily because they thought it adequate to deal only with the simplest cases or with the most blatant cases of fraud or self-deception, and altogether ignored conflicting, more puzzling, or more complicated cases.

Carpenter's contributions to the development of psychology were also impaired because he held, and encouraged, the belief in complete scientific objectivity

that was prevalent during much of the 19th century. As Carpenter put it, "the rate of its [science's] progress has been in great degree commensurate with the degree of freedom from any kind of prepossession" of scientists (1876/1888a, 239). This belief prevented him from considering the possibility that the assumptions or presuppositions of modern scientists (their "common sense," as he put it) might not be infallible. This was particularly apparent in Carpenter's writings "On the Fallacies of Testimony in Relation to the Supernatural," by which he meant testimony relating primarily to mesmerism and Spiritualism (1876/1888a; 1877). Carpenter's argument was that anyone who could be considered a "believer" in the phenomena was, ipso facto, disqualified as a competent witness or investigator, since he or she was "prepossessed" by this dominant idea, or belief. Conversely, only those whom Carpenter called "sceptics" were qualified to judge, since they were not "prepossessed" by that dominant idea. Carpenter explained that "mental prepossessions...produce sensations having no objective reality....I refer to the sensations produced by mental expectancy, a most fertile source of self-deception" (1876/1888a, 244). According to him, the physiological mechanism behind hallucinatory perceptions was that "changes in the cerebrum [produced by the expectant idea]...act downwards upon the sensorium at its base, in the same manner as changes in the organs of sense [produced by actual physical stimuli] act upwards upon it" (1876/1888, 245); "thus it becomes obvious that the testimony of a single cool-headed sceptic...should be accepted as more trustworthy than that of any number of believers, who have, as it were, created the sensorial result by their anticipation of it" (1877, 41).

Carpenter was, quite rightly, writing to educate the general public and to discourage their facile and naive acceptance of unusual phenomena at face value. But the dismissal of observations could all too easily expand to include not only those of the naive observer, but also those of any observer whose ideas differed from Car-

penter's. In contrasting those who are "led by their 'prepossessions'" and those who are led by "the guidance of trained and organized common sense" (1876/1888, 249), Carpenter cited William Crookes as an example of the first group, and himself as an example of the second. Notwithstanding the fact that Crookes had as much right as Carpenter to consider himself trained in "those scientific habits of thought" (1877, 60), Carpenter dismissed Crookes's claims as "evidence of the degree in which certain minds are led by the influence of strong 'prepossession,' to believe in the creations of their own visual imagination" (1876/1888a, 247). Conversely, Carpenter declared himself free not only from prepossession in favor of the phenomena in question, but also from any "scientific 'prepossession' against miracles, as would prevent me from accepting them as facts," given the appropriate evidence (1867/1888a, 241).

Carpenter apparently, however, did not recognize that his cautionary remarks about "prepossessions" might be a double-edged weapon. According to Carpenter, Crookes was disqualified as an observer by his "prepossessions," whereas Carpenter could be relied on as a competent observer because he was led by "the general experience of intelligent men, embodied in what we term 'educated common sense'" (1877, 57). Carpenter, however, never explained why the assumptions associated with "educated common sense" should not themselves be considered "dominant ideas" that influenced or even distorted one's perceptions -- why Carpenter and other "cool-headed sceptics" guided by "educated common sense" should be exempt from "mental expectancy," that "most fertile source of self-deception" (1876/1888a, 244), or from supplementing their actual observations with what "must have happened" (1874/1882, 628). Elsewhere, Carpenter himself had cautioned the reader to be wary of relying too heavily on common sense and "to beware of excluding all experience save their own," lest one become "too prone to deny the reality of those [experiences] in which he does not himself share....[W]hat we now regard as 'necessary truths'

may require modification in the future" (1874/1882, 405, 409).

Carpenter's proneness to apply double standards when judging what was "objective" science and what was not weakened another, related argument as well. Carpenter based his conviction that human beings have an independent will, free from the bondage of deterministic laws, entirely on the direct subjective experience of each person that he or she is such a free agent -- that is, on "our own consciousness of the possession of a self-determining power" (1874/1882, 392). Yet Carpenter himself had said that "there is often a contrariety between our beliefs as to our own states of mind, and the facts of that state" (1874/1882, 299). He was here referring to beliefs based on sensory experiences, and he considered "the direct testimony of consciousness" to be exempt from such "contrariety" (1876/1888b, 289). But Carpenter might have been better advised to apply his own words of caution to his reliance on the "commonsense" belief in free will. Numerous experiments during the 19th century demonstrated that post-hypnotic subjects could carry out actions that they believed themselves to have chosen freely, when in fact the action had earlier been suggested to them while they were hypnotized; such experiments suggested that even the "direct testimony of consciousness" might be as unreliable as sensory experiences.

In short, Carpenter's writings on psychology suggest that his views on mind were based more on his assumptions than on observations -- particularly his assumption that "educated common sense" could be relied upon to be generally "free from any prepossession" and thus adequate to judge what is or is not possible. As Carpenter himself expressed it, "we should rather trust to the evidence of our sense, than to that of our senses" (1877, 113). The prevailing effect of this tendency to invoke "common sense" as the authoritative arbiter on longstanding and complicated question was to discourage further inquiry into problems, such as those of the nature and

extent of volition or consciousness, that might be more complicated than "common sense" now assumed. For a field such as scientific psychology, and especially abnormal psychology, that had just entered its infancy, such discouragement amounted to strangling the baby in its crib.

Henry Maudsley (1835-1918)

In distinct contrast to Carpenter's modified dualism were the psychological theories of another prominent 19th-century physiologist and physician, Henry Maudsley. For many people in the 19th century, Maudsley's name became almost synonymous with the rather rigid and narrow materialistic philosophy that (perhaps, at first, necessarily) characterized the thinking of so many of the early proponents of a physiological psychology. Myers, for example, confided to a friend

that the kind of adversary present to my mind is a man like Dr. Maudsley; -- a man for whose private character I can well believe that I should feel much respect, but who represents a school of thought...[of] men whose minds associate religion and the mad house, psychology and the vivisection-table, Love and the Strand. (August 28, 1883 letter to J. A. Symonds)

Maudsley approached psychiatry -- and by extension psychology -- primarily from the perspective of the biological sciences rather than clinical observation and philosophy, and his Physiology and Pathology of Mind became "a turning point in English psychiatry" (Lewis, 1951, 269). But like many of the early proponents of a naturalistic psychology, he had little tolerance for what he considered the old ways of thinking about mind.

The principle of continuity, so important in much of 19th-century scientific thinking, was the central point from which all of Maudsley's beliefs about mind and psychology developed; and the converse side of that focal point was his intense anti-dualism. His primary purpose was to repudiate the old theological ideas of mind as a non-physical entity working through the body, and the accompanying disdain for the body, primarily because he could find no demarcation line separating a purely

material living system from a supposedly dualistic one:

Trace the gradual development of the nervous system through the animal series, ...and let it be declared at what point it suddenly... becomes the mere mechanical instrument of a spiritual entity...[where] does the immaterial principle abruptly intervene and supersede the agency of matter, becoming the entirely distinct cause of a similar, though more exalted, order of mental phenomena? (1873/1886, 263)

Like so many of the early psychologists, therefore, Maudsley established an inflexible dichotomy between scientific, physiological psychology and metaphysical dualism, believing that the two could never co-exist and that the former would only be triumphant when the latter had been destroyed; and he became so militant in his attempt to aid in this destruction "that he wrote intemperately," with "diatribes" and "vehement assertion[s]" (Lewis, 1951, 270). He pronounced dualism to be a position held by "metaphysicians, religious ascetics, and maniacs" (1873/1886, 13); and he firmly closed the door on any attempts to reconcile science and religion by proclaiming that "the union of philosophical inquiry [that is, empirical science] and religious faith is not a natural union" and that its products are like those of other "unnatural unions" -- "sterile" at best, "monstrous" at worst (1873/1886, 275).

Maudsley's definition of materialists is a succinct statement of his own belief about the nature of mind: They are "those who maintain that mind is an outcome and function of matter in a certain state of organization" (1879, 667). More specifically, as early as his first published paper he explained that "man's consciousness and moral nature and all his other psychological attributes are closely dependent on the physical structure of his brain" (Lewis, 1951, 264 [quoting Maudsley in Journal of Mental Science, 1859]). Accordingly, Maudsley believed that psychology and physiology are not separate sciences but jointly pursue the study of the physiology of the nervous system, and he argued that all forms of mental activity, from the most primitive instincts and automatic reflex actions to the highest forms of human

intellect, emotion, or volition, are the increasingly complex products of the evolution of the nervous system. Memory, for example, he described as being "the organic registration of the effects of impressions" (1873/1886, 25). Moreover, although memory is often considered a defining feature of mind, the essence of personal identity, and a phenomenon beyond physical explanation, it is in fact, he pointed out, a characteristic of all organic matter, down to individual nerve-cells, which display in their actions a capacity for learning and repetition (1873/1886, 25). Even volition, for Carpenter the one aspect of human personality exempt from deterministic physical laws, is for Maudsley "a physiological function of the supreme [cerebral] centres," operating in accordance with "the fundamental property of organic structure to seek what is beneficial and shun what is hurtful to it" (1873/1886, 27).

Maudsley also frequently cited data showing, he believed, a correlation between brain size and intellectual or moral development. As a physician and psychiatrist, however, he was particularly concerned with mental health. Believing that insanity and other mental disorders were entirely diseases of the nervous system, he argued that the observation and classification of them should be conducted by "the same pathological principles as other diseases," not by "exclusively psychological" principles (1873/1886, 92). Even where no structural defect was apparent, he warned that the physician should not conclude that there is no physiological cause, since there is as yet so little knowledge about molecular or chemical processes in the nervous system, or about structural features too minute to be presently detectable.

A favorite theme, however, was the inheritance of mental and moral capacities and, especially, deficits. Each improvement or decline in human insight, intellect, wisdom, or feeling "has tended to determine by degrees a corresponding structural change of the brain, which has been transmitted as an innate endowment to succeeding generations, just as the acquired habit of a parent

animal becomes the instinct of its offspring" (1879, 677). For instance, as one example of inherited insanity, Maudsley published a paper demonstrating what he considered the insanity of the 18th-century scientist and seer Swedenborg, who had, according to Maudsley, inherited the tendency toward insanity from his father (1873/1886, 163-217). Similarly, morality -- the product, he said, of biological factors promoting actions helpful to the race and suppressing those that are harmful -- is an inherited physiological characteristic, and so Maudsley cautioned that if a person "does not ever exercise the nervous substrata which minister to moral functions, ...they undergo atrophy in him, and he runs the risk of transmitting them to his progeny in so imperfect a state that they are incapable of full development" (1879, 679).

Maudsley's views on the physiological inheritance of morality and intellect found perhaps their most extreme expression in his remarks about the primitive peoples of the world. He explained, for example, that the

native Australian, who is one of the lowest existing savages, has no words in his language to express such exalted ideas as justice, love, virtue, mercy; he has no such ideas in his mind, and cannot comprehend them. The vesicular neurine which should embody them in its constitution and manifest them in its function has not been developed in his convolutions; he is as incapable therefore of the higher mental displays of abstract reasoning and moral feeling as an idiot is, and for a like reason.
(1873/1886, 54)

Elsewhere he spoke at length about the intellectual, moral, and emotional inferiority of primitive peoples, noting, for example, that "many savages cannot count beyond five" and that "many savages regard as virtues most of the big vices and crimes....Their moral feeling, such as it is, is extremely circumscribed, being limited in application to the tribe" (1879, 675-676). He also added that no amount of education or training would erase the physiological differences. Even if a primitive child and a European child were to receive similar educations, the former would remain inferior to the latter because of

their inherited biological endowments.

Because of his views on the physiological nature and the inheritance of mental characteristics, unconscious phenomena had a prominent role in his theories of mind as the predecessor of consciousness in the evolution of the nervous system. Maudsley outlined two "propositions" defining the nature of unconscious phenomena. First, they were physiological reflexes that could completely resemble acts involving consciousness and will, when in fact they lacked any conscious or volitional element (1873/1886, 17). Second, they could be actions or behavior that had originally been initiated and controlled by conscious volition, but that, with practice or repetition, had become unconscious and automatic (1873/1886, 19). The mind was thus a hierarchy of physiological functions in which unconscious phenomena, the older and more fundamental of mental phenomena, formed the bulk of mental activity. Consciousness, therefore, was not only not the primary or even defining characteristic of mind, but it was a late-appearing and "'incidental accompaniment of mind.'" If we were not conscious, nothing would be changed in our life, except that we would not know that we exist" (Ellenberger, 1957, 11).

Maudsley regularly described his approach to psychology as positivistic and agnostic. He refused to speculate about "which is the true doctrine" of the nature of mind (1879, 667), since this "is a question which science cannot touch" (1873/1886, 13). Nonetheless, his writings are largely a defense of the scientific and ethical merits of materialism, which, he complained, has been "hated...because misunderstood" (1879, 672). His self-proclaimed agnosticism, like that of many 19th-century scientists, was really a disingenuous attempt to disguise his metaphysics with the cloak of scientific objectivity, an attempt which did not, however, fool all observers:

Formally to abjure all metaphysics, and then really to admit no end of doubtful metaphysics of physics -- as Mr. Huxley and Dr. Maudsley, and so many others are constantly doing -- is scarcely consistent with adherence to the principles of pure science" (Ladd, 1892, 52).

Maudsley and most other 19th-century scientists had rejected metaphysics as a method for arriving at knowledge; but many of them then found themselves in the dilemma of being unable to allow metaphysics any place within the scientific framework but also unable to dispense with metaphysics entirely. As Lewis (1951, 267) pointed out, Maudsley "denounced introspection and metaphysics, yet he constantly returned to the metaphysical problem of the mind-body relationship, which fascinated him."

The weaknesses of some of his thinking were the direct result of his inability to recognize and acknowledge the effects of his metaphysical beliefs on his scientific work. His writings were filled, for example, with much "brain mythology" (Lewis, 1951, 272), that is, assertions that he represented as facts, but that were really speculations ranging far beyond known facts. Conversely, his assumptions may occasionally have prevented him from becoming as aware as he should have been of research findings contradicting his beliefs. Myers, for example, pointed to Maudsley as an example of "the danger of confident negations." Maudsley had proclaimed that, contrary to the claims of "quasi-scientific authors" (Maudsley's words), there was no evidence that intense ideas can produce stigmata-like bleeding. Myers then referred to recent relevant experiments of the French scientists Beaunis, Bourru, and Burot, and asked whether Maudsley had intended to label such scientists "quasi-scientific" or whether he had simply written in "mere ignorance of the facts," that is, without being aware of their experiments. (Myers, 1886e, 169n-170n). Either reason, Myers implied, was indefensible.

More generally, and perhaps more importantly for the development of psychology, Maudsley urged scientists to "apply themselves diligently to discover...how much matter can do without spiritual help" (1873/1886, vi), apparently not recognizing (or ignoring) that he was begging the major question: Is matter the primary factor, able to do without "spiritual help," whereas "spirit," or

mind, is a secondary phenomenon? Or are they in some sense co-existing and equal factors?

Such weaknesses, and indeed the narrow rigidity that characterized Maudsley's thinking, was most fundamentally the result of his inability to entertain the idea that there could be any alternative to a strict scientific materialism except the old spiritualistic, theological thinking that had long resisted and contradicted scientific findings. For him, therefore, as for many of his contemporaries, the issue was not one of bringing scientific findings to bear on metaphysical questions, but of vanquishing and replacing metaphysics with science. Such rigid dichotomizing, unfortunately, was not conducive to the development of the new concepts, methods, or approaches that a science as problematic as psychology so badly needed.

Thomas Henry Huxley (1825-1895)

For over a century Huxley has for many people been the personification of the so-called science-religion conflict, the public defender of Darwin, and the spokesman for the new secular world view against the increasingly defensive and rapidly retreating old theological guard (Irvine, 1955). His success, and that of colleagues such as Maudsley, in replacing the church with the laboratory as the source of human knowledge, was the result in large part of his (and their) ability to define and maintain an apparently clearcut dichotomy between truth and error. Huxley urged his readers and listeners to adopt, as twin guideposts for determining what lies within the boundaries of knowledge, first the positivistic principle that the empirical scientific method is the only means of producing knowledge, and, second, the agnostic principle that there can be no knowledge about matters for which there is, or can be, no empirical evidence. Because the conflict between science and religion is essentially on the issue of the nature of human beings and their place in the universe, Huxley, although a biologist by profession, focused much of his

attention and his writings on the implications of modern science for psychology and an understanding of mind. Unfortunately, although he showed much zeal in promoting the distinction between empirical science and authoritative theology, he was not so zealous in maintaining the distinction between scientific method and scientific dogma -- that is, between, on the one hand, the method of empirical observation characteristic of science in general and, on the other hand, the assumptions and opinions about the nature of the universe currently prevailing among scientists.

Huxley's goal was straightforward, and that was to replace the supernatural view of the world with the natural one. He introduced his Essays Upon Some Controverted Questions (1892) with the observation that all the essays dealt with this problem of the conflict between Naturalism, which views the world as a unified entity subject to order, regularity, and unvarying laws of operation, and Supernaturalism, which cuts "the Universe into two halves" (1892, 35n), one subject to order and law, the other capricious, free, and capable of introducing irregularity or disorder into the first. A major task for Huxley, therefore, was to destroy, by attacking its many weak points, ecclesiastical authority and its pretensions to knowledge. In many of these essays, he contrasted Biblical claims and scientific findings, and showed the former to be seriously defective as matters of knowledge. Moreover, he insisted that the choice between ecclesiastical and scientific authority was between Faith and Truth. Using Newman as an example, Huxley said that "for him, the attainment of faith, not the ascertainment of truth, is the highest aim of mental life"; and he quoted another cleric as saying that "Faith...is the power of saying you believe things which are incredible" (1889b, 939). For Huxley, "faith, in this sense, is an abomination," and he concluded that the conflict between science and religion "is even more moral than intellectual" (1889b, 939) and that "in the matter of intellectual veracity science is already a long way ahead

of the Churches" (1887/1892a, 312).

This overriding concern for intellectual veracity and truth -- even painful truth -- led him to insist on nothing but the scientific method and reason as the tools for attaining knowledge:

My conviction [is] that there is only one method by which intellectual truth can be reached, whether the subject-matter of investigation belongs to the world of physics or to the world of consciousness....
[I]nductive evidence...[is] the one and indivisible mode of ascertaining truth by the use of reason.
(1886/1892, 217)

Huxley's greatest contribution, however, was probably his insistence on the obverse of this positivistic principle, and that was the principle "that it is wrong for a man to say that he is certain of the objective truth of any proposition unless he can produce evidence which logically justifies that certainty," a principle that Huxley labelled "Agnosticism" (1889b, 937-938). It was with this point that Huxley most frequently hammered Christianity, describing ecclesiasticism as "the championship of a foregone conclusion as to the truth of a particular form of Theology...whatever the results of a strict scientific investigation of the evidence of these propositions" (1889b, 939).

A corollary of both positivism and agnosticism, and another theme Huxley re-iterated frequently, was the limits of science (and, hence, of human knowledge). Affirming the point made by Descartes and Berkeley that we can only know what the nervous system has translated into our own conscious experience, Huxley argued that we can thus never know the true nature of either matter or mind, that we can never answer such questions as the existence of God or immortality, and that the centuries spent debating such questions have been fruitless (e.g., 1889b, 938). He thus praised Hume and Kant, who saw the distinction between phenomena, which we can know, and noumena, which we cannot; and he was unceasingly critical of those who "were -ists of one sort or another" and "were quite sure they had attained a certain 'gnosis,' -- had, more or less successfully, solved the problem of

existence" (1889a, 183).

Nonetheless, Huxley did believe that as a scientist he himself had attained a certain degree of "gnosis" -- not about the "problem of existence" but about a fundamental attribute of the universe. He expressed his belief in "the universality of the law of causation" and his "disbelief in spontaneity...[that is,] uncaused action" (1886/1892, 230, 229):

The fundamental axiom of scientific thought is that there is not, never has been, and never will be, any disorder in nature. The admission of the occurrence of any event which was not the logical consequence of the immediately antecedent events, according to these definite, ascertained, or unascertained rules which we call the "laws of nature," would be an act of self-destruction on the part of science.
(1887/1892c, 247)

By extension, if anything appears to be a violation of that order -- "catastrophic" or capricious -- this is evidence not of disorder in nature but of disorder, or incompleteness, in our understanding of natural law. Huxley corrected the misconception of scientific laws as reified entities or causal mechanisms compelling compliance. They are, instead, simply statements or concepts describing observed regularities in the facts of nature and predictions of future events based on those past regularities (1887/1892a, 304). As such, they have "no more existence outside the mind than colour has" (1887/1892c, 252-253). Consequently, Huxley claimed, he had no "a priori objections" to so-called "miracles" and would "accept them and...amend our expression of the laws of nature" accordingly, provided the evidence for them was good enough (1887/1892c, 257).

In sum, Huxley's primary tenet was faith in the continuity and regularity of nature, which he defined as "the totality of that which is. The world of psychical phenomena appears to me to be as much part of 'Nature' as the world of physical phenomena" (1892, 35n). He admitted, however, that, though both classes of phenomena are a part of nature, the relationship between them is unknown. The two classes "run, not in one series, but along two parallel lines," and "though there is a most

intimate relation and interconnection between the two, the bridge from one to the other has yet to be found" (1887/1892c, 240). Specifically, it is the causal relationship between the classes of phenomena that remains in question: "The ultimate form of the problem is this: Have we any reason to believe that a feeling, or state of consciousness, is capable of directly affecting the motion of even the smallest conceivable molecule of matter?" (1887/1892b, 292).

It is at this point -- on the major psychological question of volition and the causal relationship between mental and physical phenomena -- that Huxley crossed the border of agnosticism. Although he repeatedly denied the chorus of charges that he was a materialist, reminding his readers of the agnostic position that "we can have no knowledge of the nature of either matter or spirit" (1870, 144), his belief in determinism nonetheless conflicted with his agnosticism and led him to adopt, in no uncertain terms, the belief that matter is the primary, independent factor in the universe and mind a secondary, dependent one. This essential relationship, in Huxley's view, holds regardless of whether one denies the causal efficacy of volition -- in which case mind is simply a "sign," or epiphenomenon, of the material events -- or whether one admits the causal efficacy of mind -- in which case mind is a property of matter, "undistinguishable from material things" (1887/1892b, 293). As Huxley himself summarized his position, "I have frequently expressed my incapacity to understand the nature of the relation between consciousness and a certain anatomical tissue..., [but] so far as observation and experiment go, they teach us that the psychical phenomena are dependent on the physical" (1892, 43). In the same breath, he expressed both an inability to understand the nature of the mind-matter relationship and a fundamental conclusion about its nature. Huxley was agnostic, therefore, not concerning the nature of the relationship of mind and matter -- he was convinced that mind is ultimately dependent on (because derived from) matter -- but only

concerning the specific nature of that dependence. For Huxley, in short, as for many other 19th-century scientists, the exact nature of the dependence of psychological processes on physical ones was an open -- though unresolvable -- question; but the general dependence of mind on matter was a resolved -- and thus closed -- question.

Huxley's belief about the relationship between mind and matter had two major components. The first was that the phenomena of consciousness are "called into existence" by physical processes. Specifically, they are a function of brain, in the sense that they are an "effect, or series of effects, which results from the activity of an organ" (1886/1892, 213, 225). He insisted that "we have as much reason for regarding...the nervous system as the cause of the state of consciousness as we have for regarding any event as the cause of another," cause being simply a statement about the orderly sequence of events, and mental events always being "the consequent of physical antecedents" (1874, 574-575, 558). In this connection, Huxley endorsed what we now call "systems theory," the idea that a complex arrangement of elements can exhibit properties that were not found in any of the constituent elements. Life, for Huxley, as well as mind, are such properties, arising from particular arrangements of non-living chemical elements (1870, 136-137).

The second component of Huxley's belief was that, even though physical events "give rise to" mental events, the reverse is not true. He claimed to see "no such evidence" that mental states can cause molecular changes, and he supported this conclusion by describing experimental and clinical evidence that purposeful activity, which we have in the past attributed to the conscious, volitional agency we call mind, can occur in the demonstrable absence of consciousness. He cited, for example, experiments with frogs, as well as Dr. Mesnet's case of a brain-injured soldier, as evidence that animals as well as humans can function "quite as well without consciousness, and consequently without volition, as with

it" (1874, 575).

Nevertheless, it becomes clear that his conclusion is not based so much on these few observations as it is on his beliefs and assumptions about the nature of mind -- beliefs belying his claim to be agnostic about the nature of mind. All events, Huxley believed, mental as well as physical, are part of a deterministic chain in which one event is the direct antecedent of, and gives rise to, the next event; but "volitions do not enter into the chain of causation...at all" (1874, 576). The explanation of this is that, as Huxley reminded us, we do not apprehend the physical world directly, but only indirectly, in that the nervous system translates the physical world into our conscious perception of it. Thus, mind and mental events are not entities, existing in that world and having some interaction with or effect on that world; they are only the nervous system's translations, or representations, of events occurring in the physical world independently of the associated mental events:

Our mental conditions are simply the symbols in consciousness of the [physical] changes which take place automatically in the organism....[T]he feeling we call volition is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act. We are conscious automata. (1874, 577)

We are, in other words, deterministic chains of physical events that, because of their complexity, have produced the property of being conscious of some of those physical events.

As I said earlier, Huxley was adamant in denying that he was a materialist; but readers could perhaps be forgiven for replying that in denying that this label applied to his ideas, Huxley was playing word games. He defined materialism as the belief "that there is nothing in the universe but matter and force; and that all the phenomena of nature are explicable by deduction from the properties assignable to these two primitive forces" (1886/1892, 220). He dismissed this belief as a "grave philosophical error" and "as utterly devoid of justification as the most baseless of theological dogmas" (1870,

139, 144); and he insisted that there were no grounds for calling him a materialist, since he admitted consciousness as very much a part of the natural order which, though connected with physical phenomena in some mysterious way, could not be equated with or reduced to physical phenomena or even deduced from the properties of those physical phenomena (1886/1892, 221). The phenomena of consciousness, in other words, were representations of physical phenomena, but they were not in any sense the physical phenomena themselves. Huxley thus insisted that "I see nothing materialistic in the phraseology which I have employed" (1886/1892, 227). Many other people, however, did. Huxley had limited his definition to a very specific form of materialism; for others, in contrast, materialism should be defined in the more general way that Maudsley had defined it, as the belief that "mind is an outcome and function of matter in a certain state of organization" (Maudsley, 1879, 667). Regardless of the label attached to it, Huxley's position was unquestionably that of assuming matter to be the primary variable and mind to be the secondary, dependent one.

Huxley's positivism and agnosticism did not prevent him from allowing his beliefs about the nature of mind to take precedence over the observational methods of science in which he claimed his sole allegiance lay. He ignored, for example, the not insignificant amount of evidence that was then accumulating and suggesting that hypnotic and hysterical subjects could produce physiological changes in their own bodies, frequently on demand. Instead, Huxley limited his observations on subconscious phenomena to cases in which nervous system damage was clearly involved (e.g., Huxley, 1874), and he then abused the inductive method by drawing the illogical conclusion that, because some apparently purposeful movements can occur in the absence of consciousness, then mental phenomena always simply accompany, but never give rise to, physical phenomena. This facile dismissal of the apparent efficacy of volitional or ideational states as illusory was, however, an avoidance of and not a solution

to the problem of how changes in mental state result in changes in physiological processes. Whether the event in question is ordinary intentional behavior or the rare and dramatic hypnotic production of a blister, the assumption that a mental process is a derivative of brain or other physical processes forecloses any consideration of psychology's fundamental problem of whether mind is a product or a principle of nature.

In sum, because of Huxley's rigid distinction between deterministic, scientific naturalism and indeterministic, dualistic supernaturalism, there was no room in his system for volition, mental efficacy, or any phenomena calling into question the adequacy of the natural/supernatural dichotomy as he conceived it. In his single-minded determination to obliterate the errors of the old system of thought, he built a new system based more on his assumptions about the nature of mind as a derivative epiphenomenon than on observations of phenomena relevant to the problem of the nature of mind.

Ernst Haeckel (1834-1919)

Haeckel was a biologist who, early in his career, was profoundly influenced by Darwin and thus became the first German biologist to recognize the importance of Darwin's work to biology and to incorporate it into his own work. Although he was well known and respected among scientists for his research and theoretical ideas in biology, it was as a proponent of Darwinism in Germany and one who applied Darwinism to broader questions of philosophy and religion, that he became more generally known. He "was an extreme champion of evolutionary theory. He was an excellent artist, whose imagination was prone to rule his pen and brush. For more than a generation he purveyed a crude philosophy which grew into something resembling a religion" (Singer, 1959, 475). Huxley and most other contemporary scientists maintained at least some degree of agnosticism, or humility, in the face of such momentous questions as the ultimate nature of the mind-matter relationship, God, and immortality. Haeckel had

no reservations about offering answers to such questions. Nonetheless, as Haeckel himself claimed (1894, vii, 60), a majority of late 19th-century scientists probably held the same fundamental views that he expressed, even if few were willing to state the implications of those views as openly, unhesitatingly, or brazenly as Haeckel did.

The essence of Haeckel's philosophy was summed up in the title (and contents) of his book Monism (1894). In it he expressed the basic view, held by Huxley and all others who called themselves scientific naturalists, of nature as a unity, of the continuity of inorganic and organic phenomena, of "the indissoluble connection between energy and matter, between mind and embodiment..., between God and the world" (1894, 4-5). Conversely, his position was thus also one of intense anti-dualism, or opposition to the old religious view that contrasts natural and spiritual, a created world and a creator God, or a material, inert body and an immaterial, activating soul. Haeckel's goal, therefore, was to end "the antithesis so needlessly maintained" between science and religion (1894, vii), by showing the basic unity, continuity, and evolutionary development of all phenomena once considered irreconcilably different.

Haeckel's system derived from the basic premise that atoms -- which he and most other 19th-century scientists considered the elementary building blocks from which all matter, organic and inorganic, is composed -- are not "dead" but are "animated," in that an inherent aspect of their nature is movement, or energy. As "living elementary particles endowed with the power of attraction and repulsion" (1894, 19), they form the basis from which all phenomena, physical and psychical, have evolved. He cited the laws of the conservation of energy and of matter as proof of the unity of nature, and he generalized these to the law of the conservation of substance, which summarized the fundamental principle of monism that "energy and matter are inseparable, being only different inalienable manifestations of one single universal being -- substance" (1894, 17-18).

Haeckel began by denying any demarcation between inorganic and organic substances. Organic material -- or life -- is simply the result of the combination of carbon and its properties into complex compounds. Similarly, he denied any demarcation between the matter and the mind of organic, living substances, mind being simply a complex form evolved from the basic elementary energy processes of individual atoms, or cells. Psychology, therefore, is not, "as hitherto, idle speculation about an independent immaterial soul-existence and its puzzling temporary connection with the animal body" (1894, 42). Just as atoms have combined to evolve from inorganic substances, to one-celled organic substances, and finally to the most complex animal life, the energy inherent in each single atom has combined to evolve from inorganic attraction and repulsion, to simple irritability, to the most complex and specialized brain activity, consciousness. Therefore, just as biology is a specialized branch of physics and chemistry, psychology is a specialized branch of physiology, studying the functions and activities of organisms. Consciousness and the soul, accordingly, are not "incomprehensible" or beyond human understanding, but are simply the aggregate of the energy or functions of the body's constituent cells. In Haeckel's words, consciousness "is a mechanical work of the ganglion-cells," and "the soul a sum of plasma-movements in the ganglion-cells" (1894, 47, 113).

For Haeckel, cosmology was as straightforward and simple a matter as psychology. God, he said, is no more a personal entity external to or separable from the material world than mind is from body, or energy is from the atom. God is the sum or total of the energy of the material universe, "the infinite sum of all natural forces" (1894, 78). He went on to explain that substance, "the one single universal being," consisted of two kinds -- matter and ether; and although he admitted that the relationship between ether and matter -- whether they were two antithetical substances, or whether matter arose out of ether -- was as yet unknown (1894, 93),

he nonetheless offered a "provisional" scheme of their relationship. Ether, he suggested, is the "mobile or active substance," dynamical and continuous, the "creator" or "spirit." Matter, in contrast, is the "inert or passive substance," atomic and discontinuous, the "created" and "body" (1894, 106).

Haeckel, like Huxley, denied that he was a materialist, correcting his critics on this point and insisting instead that he was a monist. He argued that monism, "the unity-philosophy," recognizes spirit as much as matter, but takes the position that "the two are inseparably combined in every atom" (1894, 58). His purpose, therefore, was not to deny spirit or mind, but to oppose "the antiquated" dualistic view of two antithetical substances, of personal immortality, and of a personal God who is the cause of, and external to, Nature. He singled out his colleague Du Bois-Reymond for particular criticism: In 1872 Du Bois-Reymond had delivered his so-called "Ignorabimus" address, in which he confessed his conclusion that the relationship between physiological facts and facts of consciousness was "absolutely and for ever inconceivable" (quoted in Tyndall, 1875/1879, 229). Haeckel dismissed this confession of ignorance as the product of the dualistic view of consciousness or mind as "an insoluble 'world-riddle,' a transcendent phenomenon in essential antithesis to all other natural phenomena" (1894, 110). Likewise, he dismissed the belief in human immortality as an "irrational dogma" that had been disproven by, among other things, physiology and its "localisation of the various activities of the mind" in the brain (1894, 55). In short, monism did not reduce mind, consciousness, or spirit to matter, as materialism did, but raised matter to include those phenomena as part of its fundamental nature.

Unlike Du Bois-Reymond or Huxley, Haeckel felt no need to curb science in with an agnostic confession of the limits of human intellect. Although he admitted that there were such limits, he insisted that the "gaps... can...be filled up by hypotheses, by conjectures of more

or less probability..., in so far as they are not inconsistent with a rational knowledge of nature. Such rational hypotheses are scientific articles of faith" (1894, 91). Nonetheless, one could argue that, just as theological articles of faith had hindered the progress of knowledge and acceptance of new ideas, scientific articles of faith prevented Haeckel from seeing inadequacies, inconsistencies, or complexities in his own doctrine. A contemporary observer noted that Haeckel was a "naive" materialist who suffered "the natural difficulty which persons who have had no philosophic training experience in observing and apprehending the importance of the immaterial facts of consciousness" (Encyclopaedia Britannica, 1911, 17:878). More recently, Chadwick (1975, 179) described Haeckel as an example of

how a scientist of academic stature lost standards when he became an evangelist. As a scientist, Haeckel had care, diligence, accuracy and reverence. As an evangelist for anti-Christian scientific religion, he was careless, inaccurate, and irreverent as any hack writer hired to be unfair for the sake of a cause and willing, if necessary, to be scurrilous.

In other words, because he was so vehemently opposed to the old theological dualism and intent on destroying it and replacing it with a new scientific faith, his own thinking became less than rational.

Perhaps most interestingly, however, Haeckel also failed to note that his own system was less monistic than he thought. In differentiating his monistic substance into ether and matter -- into a dynamic, active, continuous, "creator" and an inert, passive, discontinuous "created" -- he had, in essence, simply described the genus dualism, even as he denounced a particular species of it. Like many of his contemporaries, he adopted so narrow, uncompromising, and rigidly polarized a view of scientific and religious thought that he failed to recognize that the lines between science and religion, monism and dualism, are not so cleanly drawn as he assumed. Both sides, in fact, faced the basic problem of how to reconcile the apparent unity of consciousness and brain, or energy and matter, or the "active" and the "inert,"

with their equally apparent discontinuity. And neither side, in fact, had yet offered a satisfactory solution.

John Tyndall (1820-1893)

Tyndall's name, like Huxley's, has long been associated with the incendiary materialism and naturalism that ignited the science-religion conflict of the 19th century and that ultimately undermined the old dualistic world view. Tyndall was indeed one of the many 19th-century scientists who shared the same fundamental views that Haeckel espoused; but, despite the notoriety that some of his lectures and essays on materialism attracted among the general public, Tyndall was in reality a far less polemical and far more thoughtful exponent of scientific monism than Haeckel was. The strength of Tyndall's position derived from his continuing attempt to acknowledge equally, and to balance, two competing strains in his thinking: On the one hand, as a physicist, he believed first and foremost in the ultimate continuity and unity of the universe, exemplified in the law of the conservation of energy and matter, and he thus rejected the old dualistic juxtaposition of Nature and Supernature. On the other hand, he also had a keen, almost mystical, awareness of the incomprehensibility of the universe -- of the ultimate mystery it must always remain. Tyndall himself said that his thinking could be summarized as one idea: "That idea is the polar conception of the grandeur and littleness of man -- the vastness of his range in some respects and directions, and his powerlessness to take a single step in others" (1879a, 395-396). The one pole led him to argue for a new materialism -- one in which our conception of the nature of matter is radically revised. The other pole led him to defend the new, epistemological dualism -- one in which the scope and limits of science (and hence, knowledge) are defined by our conception of the knowable and the unknowable.

In numerous places (for example, 1861/1879, 4; 1877/1879) Tyndall expressed his belief -- and the one fundamental to scientific naturalism -- that the unity,

continuity, and determinism of the universe have been demonstrated by the doctrine of the conservation of energy, which states that no new energy is ever created but that all natural phenomena result from the conversion of one form of energy into another. He also explained that in his famous Belfast address to the British Association (1874) he had been attempting to extend the nebular theory from the inorganic to the organic worlds -- to show, in other words, that all of the visible universe is formed from its gradual development out of the same basic elements (1874/1879, 211). As he expressed this elsewhere, "The tendency, indeed, of modern science is to break down the wall of partition between organic and inorganic, and to reduce both to the operation of forces which are the same in kind, but which are differently compounded" (1879b, 50). Additionally, he believed that the doctrine of the conservation of energy implied causal determinism, "bringing vital as well as physical phenomena under the domain of that law of causal connection which, so far as the human understanding has yet pierced, asserts itself everywhere in nature" (1874, 45).

Tyndall then went on to argue that this new knowledge of the continuity of nature requires a new definition or conception of matter. The old conception regards matter as "all-vile," the inert, dead substance that is, at some stage, energized or activated by "all-noble," vitalizing spirit (1870/1879, 131-132). Tyndall offered instead a new conception, one that he said degrades neither mind nor matter but "regard[s] them as equally worthy" (1870/1879, 133). The principle of continuity demands that life and mind are not something injected into dead matter, but, on the contrary, that they are inherent in every atom and element of matter. Tyndall credited John Toland (1670-1722), the English deist, with being "the founder of that monistic doctrine which is now so rapidly spreading," because he "affirmed motion to be an inherent attribute of matter" (1879a, 378). Modern science, however, could now go further and recognize that this inherent motion, deriving from the polar forces of

attraction and repulsion in electricity and magnetism, constituted a "marvellous structural power" (1867/1878, 67). The motion was not random or lawless, but was evidence of a "tendency on the part of matter to organise itself, to grow into shape, to assume definite forms in obedience to the definite action of force.... Incipient life, as it were, manifests itself throughout the whole of what we call inorganic nature" (1868/1879, 81).

Tyndall also demonstrated the continuity of inorganic, vegetable, and animal forms of matter by comparing the transformation of a drop of water from liquid to crystal, the growth of an acorn into a tree, and the development of a cell into a baby. All, he said, are evidence of "a formative power" or "an intrinsic architectural power" -- a latent potential in all elementary particles of matter to develop into complex forms under the appropriate environmental conditions (1875, 591-592). In short, "believing as I do in the continuity of Nature, I...discern in that Matter...the promise and potency of all terrestrial Life" (1874, 55). This is materialism, he agreed, but materialism of a very different sort from that so feared, hated, and vilified by many of his contemporaries; it is "the practical materialism of the present" (1875, 599). Instead of degrading mind and spirit, he said, his materialism elevates matter and makes it the object of wonder, mystery, and awe: "What an astonishing addition is here made to the power of matter! Who would have dreamt...that such a power [of crystallization] was locked up in a drop of water?" (1875, 592).

As with most other 19th-century scientists, Tyndall's belief in continuity carried with it a rejection of the old dualism, or what he called the "creative hypothesis," which postulates not only a natural order but also an external order from which comes life, spirit, mind, and the creative or volitional agency that introduces the latter order into the former. In an early essay prompted by the Church's call for a national day of prayer intended to end a drought (1861/1879), Tyndall argued

that the religious concept of prayer as a causal agent and the scientific concept of law were mutually exclusive:

Assuming the efficacy of free prayer to produce changes in external nature, it necessarily follows that natural laws are more or less at the mercy of man's volition, and no conclusion founded on the assumed permanence of those laws would be worthy of confidence" (1861/1879, 6).

He rejected, in short, volition as a causal phenomenon. Later, in the Belfast Address (1874), Tyndall traced the evolution of human thought from the old anthropomorphic, teleological concept that attributed natural phenomena to the caprice of an external Will, to a doctrine of atoms and physical theories that attribute natural phenomena to an orderly succession of natural law. The former concept postulates "an external artificer" who has created all natural phenomena; the latter postulates evolution and the creation of an "infinity of forms...by its [Nature's] own intrinsic force and virtue" (1874, 19). The two views, he thought, are totally incompatible; even the attempted compromise that allows God only the single creative act of having produced the one primordial germ of life is to Tyndall an unacceptable "anthropomorphism": "Two courses, and two only, are possible. Either let us open our doors freely to the conception of creative acts, or, abandoning them, let us radically change our notions of Matter" (1874, 54). Tyndall left no doubt that the scientific principle of continuity leaves only one choice: "The order and energy of the universe I hold to be inherent, and not imposed from without, the expression of fixed law and not of arbitrary will" (1877/1879, 339).

Furthermore, the corollary of this conclusion is that the old notion of the relationship of mind and body must also be abandoned. The hypothesis of a soul or "self, which acts through the body as through a skillfully constructed instrument...increases our darkness ...[since] it explain[s] the unknown in terms of the more unknown" (1877/1879, 357).

In dismissing these tenets of religion, however, Tyndall did not also dismiss religion itself. First of

all, he made it clear that religions had erred in trespassing onto a territory that was not theirs, proclaiming knowledge that they did not in fact have (1874, 60; 1874/1879, 212); religion is "mischievous, if permitted to intrude on the region of knowledge" (1874, 60-61). Religion's domain is, instead, human feeling and emotion, "the lifting power" that suggests truths of which we get only "mere hints and glimpses," but that "must long, if not for ever, lie beyond" the reach of our knowledge (1875, 599; 1874/1879, 212). It is thus, he said, the present form of religion we must reject, not religion itself (1861/1879, 2; 1874, 60).

He went on to say that religion, properly understood, has an important role to play in human life. The domain of science -- that of intellect and reason -- is insufficient for many people: "Man never has been, and he never will be, satisfied with the operations and products of the Understanding alone; hence physical science cannot cover all the demands of his nature" (1874, 6-7). There are, for example, both "analytic and synthetic tendencies of the human mind," and people of different temperaments favor one over the other. Those of "warm feelings and minds open to the elevating impressions produced by Nature as a whole...lean to the synthetic side"; those of "more precise and more mechanical bias" seek "the satisfaction of the understanding" (1874, 24).

Moreover, many people combine both tendencies in their character, Tyndall himself being an important example. In numerous places, he spoke of the mystery and awe he experienced in the face of the growing knowledge about the nature of matter, an "essentially mystical and transcendental" phenomenon (1879b, 51). Also, despite his rejection of Christianity and the "form" of religion, he confessed that he had nonetheless retained his religious sentiment, both because of and in spite of his scientific knowledge. He explained that, even after his rejection of Christianity, he "could by no means get rid of the idea that the aspects of nature and the consciousness of man implied the operation of a power altogether beyond my

grasp" (1879a, 384); and he remained aware of "a Power which gives fulness and tone to [my] existence, but which [I] can neither analyse nor comprehend" (1870/1879, 136).

Tyndall also argued that in science as well as in life the intellect alone is insufficient. He repeatedly referred to the role that "intuition," "genius," "imagination," and "spiritual insight" play in science (1868/1879, 77; 1870/1879, 103-104). He noted that "the kingdom of science...cometh not by observation and experiment alone" (1874/1879, 210). Scientific theories, although derived from experience and experiment, are in fact "wholly ultra-experiential" (1874, 53), and "the difference between the great and the mediocre investigator" lies entirely in their relative ability to move beyond the "experience" to the "ultra-experiential" (1874/1879, 210). In a positivistic age that worshipped cold, hard facts and shrank from such un-empirical words as "intuition," Tyndall reminded his fellow scientists that science without intuition or creative genius "would be a mere tabulation of co-existences and sequences" (1870/1879, 104). Moreover, such insight could occur either before or after the collection of raw data: An act of genius or insight, said Tyndall, could be both one "which unravels and illuminates the tangle of centuries of observation and experiment" or one "which anticipates the fact and constitutes a spur towards its discovery" (1879a, 417). Tyndall acknowledged that he himself had received much inspiration from Tennyson's poetry; "writings apparently far from science have often spurred me on in the pursuit of science" (1897, 470).

Religion and science, therefore, in Tyndall's view are "not opposed, but supplementary" (1874, 64), each having its own role to play, the one satisfying human emotion, the other satisfying human intellect. Tyndall thus shared the view that grew increasingly important throughout the latter part of the 19th century, the new dualism that segregated aspects of human thought into different territories and "allow[ed] each its fair share" (1868/1879, 79). Although he urged both sides to work

together and "wait calmly for the statement of the whole" (1868/1879, 79), he also made it clear that "the whole" was in fact forever unavailable to the human mind. Instead, each age must reconcile and balance the two sides by its own intuitive, subjective, or "creative" conception of the nature of the universe (1874, 64).

It follows from Tyndall's distinction between religion and science that the primary criterion distinguishing -- and separating -- the two is the boundary that can be fixed between what humans can know and what they cannot. Thus, an important theme that recurs throughout his writings is the limits, or boundaries, of science. He defined the primary purpose of one paper as "to define, if possible, the bourne between this [physical science] and that other region [religion], to which the questionings and the yearnings of the scientific intellect are directed in vain" (1868/1879, 79). To those heady with the progress and prospects of science, Tyndall cautioned that we need to make "as much a recognition of the weakness of science as an assertion of its strength," specifically by distinguishing "between what men knew or might know, and what they could never hope to know" (1879a, 394). He acknowledged that those limits are not fixed. In a passage anticipatory of Kuhn's later theory of the progress of scientific knowledge (Kuhn, 1962), Tyndall described Emerson's idea that

knowledge spreads by intermittent victories instead of progressing at a uniform rate....At a given moment knowledge is surrounded by a barrier which makes its limit. It gradually gathers clearness and strength until by-and-by some thinker of exceptional power bursts the barrier and wins a wider circle, within which thought once more entrenches itself. (1877/1879, 342)

Nonetheless, Tyndall attempted to segregate the realm of science from the realm of religion by defining the limits of knowledge. On the one hand, science can potentially understand "everything" about "this intermediate phase of things that we call nature"; on the other hand, science knows nothing of the origin or destiny of nature....[M]any of us...feel that there are more things in heaven and earth than are dreamt of in the

present philosophy of science, but [also]...how vain is the attempt to grapple with the Inscrutable.
(1879b, 52)

Tyndall identified the Knowable as being physical science alone. A scientist

must be a pure materialist. His enquiries deal with matter and force, and with them alone....The mind of man may be compared to a musical instrument with a certain range of notes, beyond which in both directions we have an infinitude of science. The phenomena of matter and force lie within our intellectual range....But behind, and above, and around all, the real mystery of this universe lies unsolved, and, as far as we are concerned, is incapable of solution....[B]e careful of pretending to know more about it than is given to man to know.
(1867/1879, 72-73)

Specifically, Tyndall argued that a problem frequently subjected to the scrutiny of human intellect is in fact beyond the range of human intellect -- that problem being the relationship of mind and matter, the "two opposite faces" of that "mysterious duality" (1870/1879, 133-134). In numerous places Tyndall insisted that, although the absolute correlation of mental phenomena with brain phenomena was known, the nature of that relationship, or connection, was not only unknown but unknowable. In his essay "Scientific Materialism," for example, he claimed that, since the correlation of mind and brain is "invariable," then the one was theoretically predictable from the other: "given the state of the brain, the corresponding thought or feeling might be inferred; or, given the thought or feeling, the corresponding state of the brain might be inferred" (1868/1879, 86; see also 1879a, 392). Nevertheless, he went on to say,

the passage from the physics of the brain to corresponding facts of consciousness is unthinkable. Granted that a definite thought, and definite molecular action in the brain, occur simultaneously; we do not possess the intellectual organ, nor apparently any rudiment of the organ, which would enable us to pass, by a process of reasoning, from the one to the other. They appear together, but we do not know why. (1868/1879, 87)

Even if we had an exact knowledge of the correspondence, "the chasm between the two classes of phenomena would

still remain intellectually impassable" (1868/1879, 87). Thus, he concluded, a neutral statement of the "invariable" correlation, or parallelism, is as far as science can go; and this is in fact not very far. The scientist cannot

say that his molecular groupings, and motions, explain everything. In reality they explain nothing. The utmost he can affirm is the association of two classes of phenomena....The problem of the connection of body and soul is as insoluble, in its modern form, as it was in the pre-scientific ages. (1868/1879, 87-88)

Science can describe the mind-matter relationship but it cannot explain it, because with mind or consciousness, "the methods pursued in mechanical science come to an end...[and] logical continuity disappears" (1879a, 390-391). Tyndall therefore insisted that he must remain agnostic on the question of whether mind is a causal factor in physical events, or merely a by-product of them, since

the production of consciousness by molecular action is to me quite as inconceivable on mechanical principles as the production of molecular motion by consciousness....I, however, reject neither, and thus stand in the presence of two Incomprehensibles, instead of one Incomprehensible. While accepting fearlessly the facts of materialism dwelt upon in these pages, I bow my head in the dust before that mystery of mind. (1874/1879, 224)

Tyndall's agnosticism about the relationship between mind and matter, and his recognition of the limits of human intellect, were both commendable up to a point; but they were also indicative of the general effect that 19th-century agnostic parallelism had on the direction of scientific psychology. First of all, Tyndall's contention that the methods of science "come to an end" when they encounter the phenomenon of mind or consciousness, together with his agnostic acquiescence to the "mystery of mind", surely had the effect of suppressing among psychologists the intuition, insight, or creative genius that generates theoretical understanding and takes a science beyond the stage of being "a mere tabulation of co-existences and sequences."

Equally pernicious, however, was the vague assumption

of Tyndall, and of many other scientists, of an "invariable" correlation between mental processes and brain processes. As James (1890b, 1;177-178) pointed out (and as I will discuss further in Chapter 4), defining the level at which mental and physical processes are correlated -- that is, "which mental fact and which cerebral fact" can be said to be concomitant -- is problematic at best. Perhaps more importantly, however, the nature and extent of mind-brain correlation should have become the major empirical problem for any scientific psychology that sought theoretical understanding of its phenomena, namely, psychophysiological functioning. Most psychologists assumed, as Tyndall did, an "invariable" but unspecified correlation and proceeded to examine only the mental or behavioral side of the psychophysiological equation, "in its own coherence." Even among those scientists who continued to demonstrate "the control which the nervous system exercises over man's moral and intellectual nature," and thus the dependence of mind on brain (1874/1879, 221), there was no converse attempt to examine whether, or when, a mental state might also exercise some control over a physical state.

Unfortunately, because Tyndall and many others limited the question of the mind-matter relation to the metaphysical, ontological one, and then declared repeatedly (and rightly) that such a question was beyond the reach of science, they effectively forestalled any attempts to distinguish the empirical question of correlation from the metaphysical one. The invariability of the correlation remained essentially unchallenged, and the assumption of a unilateral dependence of mind on brain became entrenched in the minds of scientists.

W. K. Clifford (1845-1879)

Clifford, professor of mathematics at University College, London, was during his short life another outspoken member of the group of scientists who unceasingly attacked religion and theology as hindrances to the advance of knowledge and who argued that the scientific

principle of continuity demanded instead an ultimately monistic view of the universe rather than the religious, dualistic system of Nature and Supernature. Clifford was highly regarded as both a mathematician and a philosopher, and through his essays published in such periodicals as Mind and Fortnightly Review, he became well known to the general educated public as another influential proponent for the often militant attempt of scientific naturalists to undermine the dualist conception of mind and replace it with a monistic one. Yet perhaps the most charitable thing to be said about his papers on psychological topics is that he died young, before he had had sufficient opportunity to develop the humility about human knowledge that Tyndall showed. Dogmatic to an extreme, Clifford was the quintessential 19th-century scientist who apparently believed that scientists had achieved an adequate understanding of the major outlines of the universe, if not all the details. He, like many other scientists, therefore believed that science had revealed enough basic principles about the nature of the universe so that the nature of mind and of the relationship of mind and matter could be inferred from these principles. He thus implicitly encouraged psychologists in the rationalistic approach of taking these inferences as premises of psychology, rather than in the empirical approach of using science as a means of producing observations, and thus ultimately increasing knowledge, relevant to the question of mind and its relation to matter.

Clifford's views can be summarized by saying that he viewed the nature of the universe as ultimately monistic, the nature of mind as atomistic, and the nature of the mind-matter relation as parallelistic. These views all derived from his basic faith in the continuity of all phenomena and from his associated belief that the "guiding conception of uniformity" in science is atomism, or the belief that all phenomena are the products of "practically uniform elements" (1875, 778-779). The doctrine of evolution and continuity allowed for no place at which

consciousness, or mind, was suddenly introduced as a new element; nor did it allow for any break between inorganic and organic matter. The conclusion must therefore be, he said, that inherent in every particle or element of matter is a correspondingly simple particle or element of consciousness. Just as all forms of matter are more or less complex aggregates of simple elements, so all forms of mind, from the simplest feeling to the higher functions of sentience. consciousness, intelligence, and volition, are complex aggregates of these simple elements of mind, which Clifford labelled "Mind-Stuff" (1878/1886).

Another scientific principle, the doctrine of the conservation of matter and energy, then provided the basis for Clifford's conclusion about the nature of the relationship between an element of matter and its associated element of mind. This doctrine says that no new energy is ever created, but that energy is continually being transformed from one form into another or transferred from one location to another. The doctrine, he said, must hold true in the brain as anywhere else; and this fact, he went on, precludes mind from being a causal factor in any chain of physical brain events, since that would involve the introduction of new energy into the chain -- a break in continuity as well as a violation of the conservation principle (1874, 727). Thus, he concluded, mental and physical facts

are on two utterly different platforms -- the physical facts go along by themselves, and the mental facts go along by themselves. There is a parallelism between them, but there is no interference of one with the other....[I]f anybody says that the will influences matter, the statement is not untrue, but it is nonsense....Such an assertion belongs to the crude materialism of the savage....[T]he only thing which influences matter is the position of surrounding matter or the motion of surrounding matter. (1874, 728)

Clifford thus rejected the kind of materialism that conflates matter and mind and tries to reduce the latter to the former. Physical facts, he said, are objects, things available to one's perception or consciousness.

Mental facts, in contrast, are "ejects," things inferred only and not perceivable (1878/1886, 72). There is a correspondence or parallelism between mental facts and physical facts, just as there is between a map and the terrain it represents, or between a spoken sentence and a written one (1874, 732); but, like the map and the land, or the speech and the writing, the two sets of facts cannot be confused: "Sometimes one series is known better, and sometimes the other," but in mixing them up, we are "acting exactly in the spirit of the new materialism" (1875, 792-793). Instead, in the spirit of the new dualism, Clifford insisted on keeping the two series entirely separate.

This atomistic and parallelistic view of mind led Clifford to insist on an absolute one-to-one correspondence, or concomitance, between mental events and physical events. First of all, in general the "laws connecting consciousness with changes in the brain are very definite and precise" (1875/1886, 247). Since, however, consciousness is a complex compound made up of numerous individual elements of mind-stuff, paralleling similarly complex brain processes built up from numerous material elements, then it follows that each individual element of one parallels some individual element of the other: "This correspondence [of mind and brain] extends to the elements, and...each simple feeling corresponds to a special comparatively simple change of nerve-matter" (1878/1886, 282-283).

Despite the naturalistic and even materialistic tenor of Clifford's writings, his philosophy was actually a kind of idealism, based on the recognition that we can have direct knowledge only of our own sensations or consciousness and that our knowledge of the external world is simply our indirect perception of it, a representation filtered through our sensory apparatus. As Clifford expressed this,

The physical world which I see and feel and infer, is just my dream and nothing else....This doctrine of Berkeley's has now been so far confirmed by the physiology of the senses, that it is no longer a

metaphysical speculation, but a scientifically established fact. (1875, 780)

In an odd twist of logic, Clifford concluded from this knowledge about perception, not that mental phenomena are symbols or representations in consciousness of the real material world, but that the material world is a symbol or representation of a reality that we can never directly know (1874, 87; 1875, 782, 793). This reality is the mind-stuff behind or inherent in every particle of matter. Thus, the ultimate reality, or noumenal thing-in-itself, is neither mind nor matter (both of which are complex compounds), but the elemental mind-stuff from which both derive (1874, 733).

Though perhaps technically an idealistic philosophy, Clifford's system was, practically speaking, a materialistic one in the sense that the phenomenon of mind, or consciousness, was clearly dependent on the particular substratum of its associated brain. Individual consciousness, according to Clifford, is the product of numerous compounded elements and, as such, is dependent for its continued existence on the continued existence and integrity of the compound physical structure that is its material representation. Clifford was particularly insistent on this point in connection with his dismissal of the suggestion by the physicists Stewart and Tait (1875/1876)² that mind or consciousness might not be dependent on the particular physical configuration of the brain, but might instead be associated more permanently with a form in a presently imperceptible order of things of which the visible material universe is only a derived part. Clifford dismissed this possibility categorically: "If individual feeling always goes with individual nerve-message, ...does it not follow that when the stream of nerve-message is broken up, the stream of feelings will be broken up also?" (1875/1886, 248). Elsewhere, he argued that "if mind is the reality or substance of that which appears to us as brain-action, the supposition of mind without brain is...a contradiction in terms" (1874, 734).

Perhaps the most notable characteristic of Clifford's writing, however, is his imperious dogmatism. For example, he dismissed the hypothesis of a mental phenomenon being a causal factor -- that is, initiating some change -- in the physical world, because this would necessitate the "creation" of new energy (a violation of the conservation principle) and because only a physical phenomenon, he said, can affect another physical phenomenon; but "if mind were a force we should be able to perceive it...and to measure it" (1874, 727-728). One might first object that a "force" is not what scientists measure, but instead certain measurable effects that we attribute to a cause called "force." More importantly, however, Clifford's arguments beg the very question at issue, whether only physical phenomena affect physical phenomena or whether, instead, mental phenomena affect physical phenomena, not by introducing "new" energy but by instigating -- in an admittedly unknown way -- the transfer or transformation of energy.

Similarly, in dismissing the idea that a particular mind or consciousness could exist in some form or in connection with some structure other than the brain, Clifford asserted that it is not "possible that an organization like the brain can exist without being perceived," because "this is a physical question, and we know quite enough about the physical world to say 'Certainly not.' It is made of atoms and ether, and there is no room in it for ghosts" (1874, 734). Therefore, he concluded, it is "a practical certainty...that there is no mind without a brain" (1874, 734). Such a statement -- implying that nothing exists except what we can now perceive -- seems a surprisingly dogmatic one for a scientist who was, presumably, aware of, say, the accelerating discoveries of spectroscopy. More interesting from the modern perspective, however, is Clifford's conjecture, made to dismiss the notion of imperceptible matter or substance, that "if some vast brain existed somewhere in space, being invisible because not self-luminous, then according to the laws of matter at present known to us, it could

affect the solar system only by its weight" (1874, 735). It has in fact been by such calculations that physicists in recent years have learned that the vast majority of matter in the universe is "dark," or imperceptible to us except indirectly by its effect on gravitational pull (see, e.g., Galeotti & Schramm, 1990; Kormendy & Knapp, c. 1987). As Myers suggested, "Clifford had not really turned over his atoms thoroughly enough to make sure that no ghost was hidden among them" (Myers, 1900b, 116); and his "reduction of the Cosmos into ether and atoms is scarce more reasonable than its reduction into the four elements, air, water, earth, and fire" (Myers, 1889j, 392).

More generally, Clifford assured his readers that science had now laid to rest some of the great metaphysical questions:

There are numbers of questions relating to the connection of the mind with the body which have ceased to be open questions, because Science has had her word to say about them; and they are only open now to people who do not know what that word of Science is, and who will not try to learn it. (1874, 715)

The task of psychology, therefore, was reduced considerably; it was simply "the science of the laws which regulate the succession of feelings in any one consciousness" (1874, 715).

Clifford's review (1875/1886) of Stewart and Tait's The Unseen Universe (1875/1876) reveals that the probable cause of his extreme dogmatism was his intense anti-religious sentiment. Clifford is surely one of the best representatives of the first stage of the intellectual transition described by Houghton (1957), characterized by extreme polarization, rigid partisanship, and acrimony. In categorically rejecting the suggestion of Stewart and Tait that there may be some form of existence after death in association with some presently unknown substance, Clifford insisted that there are two, and only two, possibilities: We can either "identify ourselves with something wider and greater that shall live when we as units shall have done living," or "we may fashion another life..., not orderly, not natural, not healthy, but

monstrous or supernatural; whose cloudy semblance shall be eked out with the dreams of uneasy sleep or the crazes of a mind diseased" (1875/1886, 163-164). With two such choices before him, Clifford opted for the former, and he counselled his readers to "put death out of sight...to cover over and dismiss the thought of our own personal end" (1875/1886, 164). More generally, Clifford dismissed the speculations of Stewart and Tait as simply another religion -- the replacement of the Christian trinity with a pantheistic one of substance, energy, and life. All religions, however, must be dismissed as simply the "sickly dreams of hysterical women and half-starved men," to be contrasted with "the sturdy strength of a wide-eyed hero who fears no foe with pen or club" (1875/1886, 179).

Elsewhere, it is even more apparent that Clifford's beliefs were perhaps based less on their own intrinsic merit than on his desire to rid the world of past error and superstition. He rejected the possibility of mental causality because this would, he insisted, "leave the way open for the doctrine of a destiny or providence outside of us, overruling human efforts and guiding history to a foregone conclusion," a doctrine he objected to because it was "immoral" and had so often "paralyzed the efforts of those who were climbing honestly up the hillside towards the light and the right, and...[because it had] nerved the sacrilegious arm of the fanatic or the adventurer who was conspiring against society" (1874, 730). Clifford had obviously not learned Tyndall's lesson that one should not confuse the form with the substance of religion; nor, apparently, had he considered that mental causality might not lead inexorably to these other doctrines. Clearly, there was much more at work in Clifford than the desire "of the seeker after truth to find out whether a proposition is true or no" (1874, 730).

The 6 scientists in this chapter illustrated the general climate of thought about mind and science in which

scientific psychology developed. In the following chapter, I turn to 5 scientists whose writings illustrate how these general ideas were applied specifically to the topics and problems with which the newly emerging discipline dealt.

CHAPTER 3

ENDNOTES

¹ "Spiritualism" here refers to the philosophical doctrine opposed to materialism, and not to the 19th-century religious movement that purported to have proved communication between the living and the dead, a movement about which Carpenter also had much to say (e.g., 1877, 1876/1888a).

² The Unseen Universe, by the physicists Balfour Stewart and P. G. Tait, was a widely read book that went through numerous editions in the late 19th century. In it the authors argued that the hypothesis of survival of consciousness or mind after death, but in some other phenomenal form, was compatible with modern physics.

CHAPTER 4
PSYCHOLOGISTS

Alexander Bain (1818-1903)

It is appropriate to begin this chapter on the foundations of modern psychology with Alexander Bain, because he has frequently been referred to as a major transition figure between the old and the new psychologies and as the first major modern psychologist (Hearnshaw, 1964, 9; Robinson, 1978, 90; Thomson, 1968, 30; Watson, 1963/1971, 213-214; Young, 1970, 101). One of his contemporaries described him as being "the first in Great Britain during the nineteenth century to apply physiology in a thorough-going fashion to the elucidation of mental states" (Davidson, 1910, 222); and another credited him with being "the first to publish a text-book on the mind with an introductory chapter on the brain and nervous system" (Hurd, 1898, 350). Murphy (1929, 112) said that he was "the first to write a comprehensive treatise having psychology as its sole purpose"; and Robinson (1978, 71) described that treatise (Bain's 1855 Senses and the Intellect) as "the pioneering text in modern psychology." Moreover, he was not only a pioneer of modern psychology, but a highly influential one. According to Murphy (1929, 111-112), he occupied "a position of authority...throughout the second half of the century....Never had a psychologist been so widely read in his own day." He was Professor of Logic and English at Aberdeen University from 1860-1880, and he also founded in 1876 the first journal devoted to psychology, Mind, and provided its financial support from 1876 until 1891 (Davidson, 1910, 222).

Bain's psychology was transitional because it was based both on 18th-century British philosophy and on 19th-century German and British physiology. A close friend and colleague of J. S. Mill (Davidson, 1910), Bain applied Mill's empirical associationism to physiology to produce the first detailed psychophysiology, in which physiology, and specifically the sensory-motor reflex

model, was shown to be fundamental to psychological processes (Murphy, 1929, 110). Bain, however, postulated that sensory-motor processes begin, not in sensation, as the empiricists had assumed, but in the innate and spontaneous activity of energy in the brain. Bain's associationism was thus an active, rather than passive, one, since motion, produced by spontaneous internal brain energy, preceded sensation, rather than vice versa, as previous associationist models assumed (Young, 1970, 115).

A central theme of Bain's writings, therefore, was to demonstrate the relevance of physiology to psychology, and especially the dependence of all mental life on physiological, and specifically brain, processes -- that is, "the physical basis of our intellectual acquisitions" (Bain, 1872/1874, 111-112). Although his interest in mind's dependence on brain had originally been aroused by phrenology, he accepted only this general principle, not the specific system described by phrenologists (Young, 1970). The specific details of his system were based not on anatomy, but on the concept of energy that became so influential after Helmholtz's enunciation of the doctrine of the conservation of energy. All living processes were, in essence, "energy exchanges between the organism and the environment," as well as the conversion of that physical energy into psychophysical processes (Robinson, 1978, 72-73).

Bain's Mind and Body (1872/1874) dealt explicitly and extensively with the question of the relationship of brain and mind, and the first half of the volume was devoted primarily to describing evidence for the thesis that all feelings, intellectual capacities, and volitional activities are directly correlated with and dependent on brain states, that "the mind is completely at the mercy of the bodily condition" (41). For example, Bain stated that "the association of brain-derangement with mind-derangement is all but a perfectly established induction" (14). He described the general principle that brain size is correlated with intelligence and the gen-

eral principle of concomitance, that "for every mental shock, every awakening of consciousness, every mental transition, there must be a concomitant nervous shock; and as the one is more or less intense so must be the other" (43). He argued that consciousness is a disturbance of nerve currents, and that such a disturbance is conscious or unconscious depending on the extent to which the disturbance is novel, intense, diffuse, or different from previous disturbances. (These "laws" of relativity, novelty, and diffusion became the basis for later hypotheses in psychology about habit and automatism, especially that of William James.) Moreover, Bain postulated that mental states are related to the amount of energy in the brain -- pleasurable states resulting from an increase in brain energy and painful states resulting from a decrease. As an example, he said that when "the blood...flows in excess to the brain," the result is a state of well-being, "an extraordinary exaltation of mental function...and even ecstatic enjoyment" (61-62).

Bain also described this correlation of mental and physiological state as an atomistic and associationistic one: "To every discriminated sensation there is (we must believe) a distinct and characteristic group of currents, actuating a separate group of fibres and cells, and susceptible of being united with any definite movement or any other definite sensation" (98). A permanent "trace" is left in the nerve cells whenever there is a new stimulus (51), and memory is the resuscitation of the nerve-elements involved in the original stimulus (90). Thus, a major task for psychology, according to Bain, is to discover, in physiological studies, "by what means the connexions are permanently fixed in the several tracts," or the nature of "the physical bond underlying memory, recollection, or the retentive power of the mind" (116). In Bain's view, the discovery of this physical process underlying memory "would make all the rest [of psychology] easy enough" (87).

Bain's theory, therefore, was that intellectual capa-

city -- the limits of intellectual acquisition, faculty, or talents -- is determined by the number of neural elements and connections. Moreover, even allowing for duplication of "traces" between hemispheres or other parts of the brain (to account for the restoration of function sometimes observed after brain injury), Bain considered the human brain to be of more than adequate size to support the view of the "physical embodiment of the Intellect" (90n): "Numerous as are the embodiments to be provided for, the nervous elements are on a corresponding scale, and...there is no improbability in supposing an independent nervous track for each acquisition" (108).

Bain, however, was not unmindful of evidence supporting the view that mental state also affects physical state. He acknowledged that there are anomalous cases of an inverse relationship between mind and body, such as when martyrs or heroes demonstrate intense or high mental activity when the body is weak or otherwise depleted of energy; but he nonetheless cautioned that such cases are too few to infer any independence of mind from body. More importantly, he mentioned briefly the phenomenon of the apparent power of the imagination over bodily states, such as in hypnosis or mental healing. He accounted for such phenomena, however, by explaining that since ideas are, in essence, faint or weak nerve currents, then the intensified ideas associated with hypnosis or other such states are simply intensified nerve processes and, as such, produce the resulting physical effects.

Bain was unequivocally anti-dualistic, believing that the physiological study of mind had completely invalidated the old "doctrine of two substances" (129), the view that "assumes for mind a separate existence, a power of living apart, an option of working with or without a body" (132). He objected to the doctrine of two substances on two grounds: First of all, he objected on the empiricist grounds that "of mind apart from body we have no direct experience, and absolutely no knowledge" (130). Second, as Clifford and others frequently did, he

appealed to the argument (derived from the doctrine of the conservation of energy) that there is (or must be) an unbroken causal chain of brain processes associated with mental events, in contrast to the gap that one would expect, on the dualist's interaction hypothesis, at the point where the immaterial mind interacts with the material brain. Thus, in his view, mind must be completely dependent on the physical body, and "without it we should not have mental states at all" (133).

Nevertheless, despite these views on the nature of mind, Bain did not adopt a totally reductionist view of mind. Instead, he believed that mind and matter are "two very distinct natural phenomena...united in the most intimate alliance" (88). He was thus an early champion, and perhaps even the originator (Davidson, 1910, 222), of the psychophysical, dual-aspect, but monistic parallelism that quickly became the predominant position on the relation of mind and brain among 19th-century psychologists.

Bain described two distinct components to this parallelism. On the one hand, mind and matter are utterly different from each other, the one having the properties of extension and localization, the other not. The facts of mind and matter thus present "a wider contrast" than any other phenomena (124), necessitating "our study of the two separate departments...each according to its own kind" (127). Psychology, therefore, is "destined to be a double study -- to conjoin the mental philosopher with the physical philosopher" (196). On the other hand, in contrast to this methodological dualism, Bain argued for an ontological, or metaphysical, monism. According to this view, mind and matter are two separate aspects of "one substance, with two sets of properties, two sides, the physical and the mental -- a double-faced unity" (196). In Bain's view, therefore, there is in reality no such thing as a "mental" event that interacts with a physical event; there is only an indivisible "psychophysical" event: "The line of mental sequence is thus, not mind causing body, and body causing mind, but mind-body giving birth to mind-body" (132).

Bain recognized that he was left with the problem of how to explain "the fact of the union itself" (127). In particular, the alliance of an extended, localized state with an unextended, unlocalized state presented "the only real difficulty" (136). In the face of this difficulty, Bain urged that we take "a step of genuine enlightenment" and simply "accept the union as a fact, just as we accept any other union -- Heat with Light, Magnetism with the sesquioxide of iron, gravity with Inert Matter" (128), even though "in comparison with all ordinary unions, it [the union of mind and matter] is a paradox" (136). Bain explained his leap of faith as follows: Since the process of explanation involves "the discerning of agreement among facts remotely placed" (121), and since the widely differing facts of mind and matter can be assimilated no further than a description of their connection, or concomitance, it follows that one has reached "the final term of explanation, the full revelation of the mystery. There is nothing farther [sic] to be done; nothing farther to be desired" (122). Like the "majority of persons," Bain was "disposed to treat the question [of the relationship of mind and matter] as insoluble, as unsuited to our faculties, as what is termed a 'mystery'" (120). Thus proclaiming any empirical exploration of the relationship futile, Bain, in short, became an early exemplar of the complacent position in psychology that we can assume mind's dependence on brain, even as we declare our inability to know mind's relation to brain.

Théodule Ribot (1839-1916)

Bain's title was Professor of Logic and English, and he is still often referred to as a philosopher. Ribot was among the first of a new generation of scientists who primarily considered themselves -- and were called -- psychologists, rather than physicians, physiologists, or philosophers who wrote on psychological topics. Appointed Professor of Experimental and Comparative Psychology at the College of France in 1888, Ribot was a highly influential scientist who, in more than a dozen

books on psychological topics, contributed to the development of psychology as an anti-metaphysical, positivistic adjunct to the physical sciences. According to a modern historian of psychology (Robinson, 1978, 278), Ribot among all 19th-century psychologists had perhaps the "most diffuse and effective" influence in shaping both the character of modern psychology and its effect on modern thought in general. Editor of Revue de philosophie and a founder of the French Society for Physiological Psychology, Ribot had particular influence on French psychologists and psychophysicists of the next generation, including Binet, Richet, and especially Janet; and he was one of the "most important spokesmen of that nineteenth-century version of French materialism which has found its way into the daily consciousness of contemporary man" (Robinson, 1978, 291). Like so many of the scientists in this and the previous chapter, Ribot's primary purpose was to defeat once and for all the old metaphysical psychology and to bring psychology within the confines of physical science by demonstrating the ultimate dependence of psychological states on physiological states. In his words, "the organism and the brain... constitute the real personality," and the apparently psychological problem of "the unity of the ego is, in its ultimate form, a biological problem" (1898, 154-156).

Ribot firmly distinguished the old, metaphysical psychology, in which mind or soul is an independent "force," or a transcendental, simple, unitary entity with certain faculties, from the new positive psychology, in which mind or soul is simply the name or concept associated with the activities of a particularly advanced level of physiological functioning. He ruled out the possibility of any reconciliation or middle ground between these two points of view, since "the language and the methods of the two sides are now so different, that all mutual understanding is henceforth impossible" (1898, 2). Ribot, like so many other scientists, could only view the old and the new psychologies as mutually exclusive and

his scornful rejection of the old was clear when he admitted that his own views were "undoubtedly... hypotheses, but they are at least not of a supernatural character" (1898, 87-88). Like so many of his contemporaries, Ribot's first concern was to rid psychology of the demon supernaturalism, or anything remotely associated with it.

Instead of being "the fundamental property of the 'soul' or 'mind,'... [and] that which constitutes its essence," consciousness for Ribot was "a simple phenomenon, superadded to the activity of the brain,...appearing and disappearing according to circumstances" (1898, 4). He considered psychology to be purely a branch of biology, the study of the evolutionary process that culminated in the appearance of a new characteristic, consciousness. Early in his career, Ribot stated that his theory of memory derived from what he described as the position of Huxley, Clifford, and Maudsley that "consciousness is only an adjunct of certain nervous processes, as incapable of reacting upon them as is a shadow upon the steps of the traveler whom it accompanies" (1882, 11). Later, he modified this position somewhat and rejected the position of those who turned this epiphenomenalist hypothesis into an automaton hypothesis, in which consciousness, solely a product of biological processes, has no effect on them. Ribot now (1898) considered this an "exaggerated" view and said instead that consciousness must have appeared and survived during the evolutionary process because it had some efficacy:

It is probable that consciousness was produced like every other vital manifestation, first, in a rudimentary form, and, to all appearances, without much efficacy. But from the moment it was able to leave behind it a vestige...from that moment a new chance of survival was created. To unconscious adaptation, blind, accidental, dependent upon circumstances, was added a conscious adaptation,...surer and quicker than the other....The metaphor of the automaton is no longer acceptable. (1898, 16-17)

Nonetheless, he left no doubt about the subsidiary, sec-

ondary, derivative status of consciousness, saying that "the fundamental and active element is the nervous system, [and] the other [consciousness] is only a concomitant" (1898, 11-12). Psychologists, he said, may treat mental (both intellectual and emotional) states as causal phenomena, particularly in connection with personality changes, so long as they do not forget that all mental states "have their roots in the organism and are pre-determined by it..., [and] that these [mental] causes are in their turn effects" (1898, 51).

Instead of the old notion of mind or self as a simple, unitary entity, Ribot viewed mind as a complex compound of innumerable elements of the nervous system working in coordination: "Physiology shows that this verdict [of simplicity or unity of mind] is an illusion....The apparently simple is, on analysis, found to be complex" (1882, 42, 45). In contrast to an indivisible essence, "contemporary science ...sees in conscious personality a compound resultant of very complex states" (1882, 107). For Ribot, therefore, individual identity, the characteristic sense of permanent unity that each individual experiences, derives solely from the body -- that is, from "coenaesthesia," the "organic consciousness," or the internal, general sensibility of the organism's nervous activity (1882, 108; 1898, 19-20, 154). This coenaesthesia is the basic, stable, longstanding, and therefore unnoticed "something that remains" behind all the changes, development, and fluctuations in the elements that make up an organism's body and mind. Identity, therefore, is the "consensus" or "co-ordination of the nerve-centres, which themselves represent a co-ordination of the functions of the organism," and "the conscious ego is only the psychological expression" of that co-ordinated functioning (1898, 86-88).

Ribot's conception of self is thus that of a "colonial consciousness," but it is not thereby comparable to the empiricist, associationist view of self as simply a bundle of sensations or perceptions; these empiricists, he said, neglect "the relations between

primitive states" (1898, 89). Instead, he proposed that higher individuals evolve out of confederations of numerous lower individual elements, and the higher conglomerate functions as a single, higher individual, rather than as a collection of multiple individuals, because one power gradually becomes stronger until it dominates and "obliterates" the others (1898, 141-142). In particular, "by a long series of successive functional delegations, the brain of higher animals has succeeded in concentrating within itself the greater part of the psychic activities of the colony" (1898, 144).

Ribot derived his view of specific psychological processes in the same way that he derived his general view of mind, by assuming mental phenomena to be the evolved, dependent product of biological processes. Memory, for example, is first and foremost "a biological fact -- by accident, a psychological fact" (1882, 10). He argued that memory is most fundamentally an organic phenomenon, associated with all levels of biological functioning, and that it becomes psychological only at the latest stage of evolution, when consciousness is introduced. Both muscular tissue and nervous tissue, for example, demonstrate the capacity for conservation and reproduction, and "psychological memory is only a particular phase" of this organic memory, identical to it in every way except for the addition of consciousness (1882, 19). Consciousness accompanies new actions, but once these are learned and habitual, consciousness lapses, and the memory is again purely an organic one, capable of controlling behavior entirely automatically. Consciousness, therefore, plays merely a "supplementary part...in the mechanism of memory" (1882, 19), albeit a useful one at certain times.

Ribot thus emphasized that memory is not a separate faculty of mind, but is a characteristic of all organic processes, and the mechanism by which it occurs involves both a static and a dynamic form of physiological traces. He insisted first that any impression that activates a nerve must modify that nerve's structure in some

permanent way, even though we cannot yet detect such modifications (1882, 23-24). A corollary of this trace hypothesis is that, since no idea, sensation, or movement is the product of an isolated nerve, but is composed of numerous interconnecting nerve elements, then the connecting pathways or associative systems between the elements develop "dynamic affinities, which, by repetition, become as stable as the primitive anatomical connections" (1882, 24-26). Memory, in short, "is a biological fact...not a collection of impressions, but an accumulation of dynamical associations" (1882, 31).

Ribot similarly derived his interpretation of subconscious processes from his basic view that mind, or consciousness, is a late-appearing product of evolution, an adjunct to the more basic neurological processes. Ribot said that the most important question to be settled about subconscious functioning is whether this is a mental activity or a physiological activity -- whether, that is, there is some form of consciousness associated with all behavior, or whether there is in fact no continuity of consciousness, but instead a threshold, above which there is consciousness and below which there is only physiological functioning (1910). For Ribot, the most probable answer is the latter, "that subconscious activity is purely cerebral," unaccompanied by any psychic factor (1910, 37). Although in this paper Ribot said only that "I incline toward this hypothesis," in an earlier book (1882) he had expressed more conviction. Consciousness, he said,

is a complex modality requiring a particular condition of the nervous system....If one of the conditions of consciousness is wanting, whether intensity, or duration, or others of which we are ignorant, a part of this complex phenomenon -- consciousness -- disappears; but another part -- the nervous process -- remains. (1882, 36)

Subconsciousness is simply the state underlying consciousness, in which mental functioning, including complex processes such as problem solving, continue solely as physiological cerebration. The relationship of consciousness to subconsciousness, or more particularly of

psychical memory to organic memory, is that "one is only a special phase of the other...only a single factor is added" (1882, 39). Presumably, therefore, the organism could readily function purely as an automaton; the addition of consciousness simply gives it an added edge of advantage.

Ribot's view of the evolution of mind -- as well as its pathological dissolution -- owed much to the theories of Hughlings Jackson. Ribot described memory as a particular example of Jackson's law of evolution and dissolution, since memory is a hierarchy or continuum ranging from the newest memories, which are conscious, unorganized, and unstable, to the oldest memories, which are unconscious, organized, and stable, and continuing to hereditary memories, which are innate, instinctual capacities. Amnesia, or dissolution of memories, follows the reverse order of their acquisition, such that "the new perishes and the old endures" (1882, 119). Thus, intellectual acquisitions go first (because they are "acquired and objective"), followed by emotional faculties (the "innate ...expression of organic life"), and finally actions "almost entirely organic" (1882, 120-121). The law of amnesia, therefore, is that "it advances progressively from the unstable to the stable...follow[ing] the path of least resistance -- that is to say, of least organization" (1882, 122). The law of the loss of memory furnishes proof, according to Ribot, that memory is a fundamentally biological phenomenon, and only "accidentally" a psychological one:

This law, general when applied to memory, is only one phase of a still more general law in biology. It is a well-known fact in organic life that structures last formed are the first to degenerate....[I]n the biological world, dissolution acts in a contrary direction to evolution: it proceeds from the complex to the simple. Hughlings Jackson was the first to show that the higher functions...were the first to disappear; that the lower, the simple, general automatic functions were the last to go....The law [of memory] which we have formulated is only the psychological expression of a law of life, and pathology shows in its turn that memory is a biological fact. (1882, 127)

Aphasia, or the loss of speech, follows the same law (1882, 151-172). Moreover, Ribot speculated that recovery of memory and of speech would also fit Hughlings Jackson's law, the oldest and most stable forms being the first to re-appear (although he could cite only three weak cases supporting this conjecture) (1882, 123-126, 172-173).

In keeping with his physiological theories, Ribot attributed not just loss of memory and speech, but indeed all abnormal mental processes to organic disturbances. He attributed memory loss to "grave anatomical lesion, [or] a degeneration of the nervous cells" (1882, 118). Conversely, hypermnesia, the abnormal exaltation of memory, is "always associated with some organic disorder....[It] seems to depend entirely upon physiological causes, and particularly upon the rapidity of the cerebral circulation," such as during fevers, mania, ecstasy, hypnotism, hysteria, brain diseases, or near-drownings (1882, 174-176). He also believed that, since personality and identity depend on coenaesthesia, then disorders of personality must result from an impaired or disordered body sense: "The sense of the body plays the principal part in the pathology of personality" (1898, 99). In general, "perversions of the general sensibility," from denial of various bodily parts, to alterations of body sense, to denial of one's whole body, are "explained by a suppression or alteration of the internal sensations" (1898, 32, 130-131). Multiple personality cases derive from "profound causes, probably physiologic, having their roots in cenesthesia [sic]" (1910, 39). Elsewhere, he was not so cautious and declared that such cases are "undoubtedly connected with the unknown organic change which dominates the whole situation" (1898, 72). The "two subjective memories" of alternating personalities are "the organised expression of the two coenaesthesias" (1898, 116). Although Ribot lamented that "ignorance of the causes arrests our progress," he sought those causes down only one avenue: "What are the physiological influences that thus change

the general tone of the organism, consequently the coenaesthesia and the memory?" (1898, 116). When addressing the topic of hallucinations, Ribot insisted: "There must exist here some anatomical and physiological causes, at present unfortunately unknown, the discovery of which would solve the problem" (1898, 104). He admitted that an illusory idea may produce organic effects, such as in hypnotized subjects, but he then insisted that there must be an underlying organic derangement producing the illusory idea (1898, 118). Hypnosis in general he attributed to suppression of elements of "the real personality" by "some imperfectly understood condition of the nervous centres" (1898, 122).

The above paragraph illustrates that for Ribot, as for Carpenter, Huxley, Clifford, and other 19th-century scientists, psychological studies too often became a rationalist process of inferring explanations, hypotheses, or theories from assumptions or principles borrowed from other sciences, with insufficient attention paid to the empirical process of verifying -- or, more importantly, falsifying -- these assertions. None of the above statements were supported with relevant evidence; and even where he infrequently claimed to be citing evidence for his position, it is clear that that evidence could as easily support another interpretation. He insisted, for example, that Siamese twins must share a part of their personalities because they share parts of their body:

There will be of necessity...a partial penetration of the two egos, and there must exist a determinate element of psychic life held in common by them....Each individual is thus a little less than an individual, which has been fully corroborated by experience. (1898, 37)

Little evidence was, in fact, cited; but one must certainly consider that shared environment and the practical necessity for cooperation would be equal to shared coenaesthesia as candidate explanations for the twins' alleged similarities. Yet Ribot went on to speculate that if two men could be created "constitutionally identical," with "their hereditary influences rigorously alike," and

their "physical and moral impressions" identical, "there would be no other difference between them than that of their position in space" (1898, 49). Almost comically, Ribot then declared himself "somewhat ashamed of having accumulated so many data and proofs to establish a truth so evident to my eyes" (1898, 49-50).

In fact, the "truth so evident to my eyes" seems to have blinded Ribot to the realization that confident assertions do not constitute evidence. Physiologically oriented scientists such as Ribot, Carpenter, and Maudsley carried psychology a major step forward when they ended the segregation of psychology and physiology. Their usefulness, however, ended when they began substituting inference, assumption, and assertion for observation; and the expansion of psychological knowledge slowed when many of them, satisfied that they had at last mortally wounded the enemies supernaturalism and superstition, became content with "brain mythology" and with the associated assumption of a one-way causal dependence of mental phenomena on neurological phenomena. Now that these scientists had firmly aligned psychology on the side of natural science, in opposition to metaphysics and theology, it remained for other scientists to move psychology beyond "physiologizing" and seek an understanding of mental phenomena as, in their own right, biologically adaptive phenomena.

Wilhelm Wundt (1832-1920)

Psychologists such as Bain and Ribot had concentrated on the first task in the development of scientific psychology -- that of bringing it under the auspices of science. Wundt was one of the new psychologists who turned their attention instead to the second task -- that of establishing psychology as a full-fledged autonomous discipline, defined by its own subject matter and methods. Moreover, as founder and head of the laboratory for experimental psychology at Leipzig, where many (if not most) of those who became psychologists in the late 19th century launched their careers, and as a prolific writer

whose works spanned six decades of psychology's formative period, Wundt had a far-reaching impact on the new discipline.

Unlike the many exponents of a naturalistic psychology who emphasized the continuity between mind and nature, Wundt was among those who began to ride -- or direct -- the swing of the pendulum back toward emphasizing the radical differences between mind and matter and, hence, the need for a new and independent science to study the former. The most fundamental distinction between mind and nature, according to Wundt, is that the former is immediately, or directly, known, whereas the latter is mediately, or indirectly, known (e.g., 1894, 452). This differentiation not only led Wundt to define psychology as a science distinct from, and not merely subsumed under, the natural sciences; it also led him to declare psychology as "the fundamental science supporting the natural sciences" and the natural sciences as "derivative sciences" (Leary, 1979, 234-235).

Wundt's definition and conception of psychology and its methods derived directly from this distinction of mind and nature. First of all, he explicitly rejected the "deep-rooted tendency to hypostatise mental events" and thus to consider either ideas or consciousness as objects (1894, 250). To accept the notion that mind is a "transcendental substance" to which experience belongs is, he said, to be guilty of transforming immediate experience into objects, or phenomena, a position which confuses immediate with mediate knowledge and "implies a kind of unconscious materialism" (1894, 451, 453). Instead, he defined consciousness as internal experience: "Our mind is nothing else than the sum of our inner experiences, than our ideation, feeling, and willing collected together to a unity in consciousness" (1894, 451); and self is "simply and solely the perception of the interconnection of internal experience which accompanies that experience itself" (1894, 250). Psychology, therefore, is quite simply the study of internal experience, of "Man himself, not as he appears from without, but as

he is in his own immediate experience" (1894, 1). Thus, its primary method is introspection, or the direct observation of that internal experience. More specifically, as a science, psychology seeks to discover and describe the laws of the interrelation between experiences; it seeks to understand the "interconnection of simultaneous and successive mental processes; and the problem of consciousness consists in determining how the particular phenomena are interrelated, and how their relations and connections again combine to form the totality of mental life" (1894, 238).

This fundamental distinction between mind (or directly known experience) and nature (or an indirectly known and hence postulated substratum) provided the conceptual basis for Wundt to define the nature of the relationship of mind and matter. Mental processes and physical processes are, he insisted, "wholly incomparable"; even a complete knowledge of one domain would reveal nothing about the other (1894, 445-446). Because they are phenomena of two entirely different kinds, and because of the principle of the conservation of energy, there can be no causal connection between the two sets of processes; each is a "closed circle" and must be studied independently as such (1894, 41). The "psychical can only be adequately explained from psychical, just as motion can only be derived from motion, and never from a mental process" (1894, 442). Hence, physiology studies the interconnections of one circle and thus discovers physical laws, whereas psychology is concerned only with "the explanation of the interconnection of the psychical manifestations of life, which form another and a separate causal series" (1894, 449).

Paradoxically, however, although the physical and the psychical are "two utterly disparate principles," they are "yet never out of relation to each other" (1894, 449). There can logically be no causal connection between them, but they are nonetheless linked in some manner: "There is a uniform co-ordination of the two....The connexion can only be regarded as a paral-

lelism of two causal series existing side by side, but never directly interfering with each other in virtue of the incomparability of their terms" (1894, 442).

Wundt, like other proponents of psychophysical parallelism, was not unmindful of the objection that "this 'concomitance' in the midst of 'absolute separateness' is an utterly irrational notion" (James, 1890b, 1:136). He attempted to mitigate the problem, however, by suggesting that the parallelism, or concomitance, between the two series occurs only at the level of the most elementary processes. Like many other 19th-century scientists, Wundt found it "inadmissable" to think that there had been a radical point of discontinuity in the evolutionary process when "mental existence suddenly appeared" (1894, 443). Instead, like Clifford and others, he thought it more likely that this point of apparent discontinuity was only the point at which we can detect mental life and that in fact a primitive mental process accompanies every basic physical process. Thus, he could argue that the "connexion" between mental and physical processes was only at this basic level: "The principle of psychophysical parallelism, then, refers always to a parallelism of elementary physical and psychical processes, and not to any parallelism of complex activities on either side or of mental function and bodily structure," since complex mental and physical processes were the result of two completely separate causal chains (1894, 448).

Wundt emphasized the complete separation of physical and mental causality, and hence the need for a separation of physiology and psychology, by insisting that, although we often talk about the interaction of mental and physical processes, it is only out of ignorance of the complete causal chain on one or the other side that we mix our terms. Psychology and physiology may "supplement each other; where certain links are wanting in the causal nexus of the one side," we may substitute "connecting terms" from the other:

But it is always understood that the interpolation does not carry with it any real completion of the broken chain of connected processes; it is simply

the substitution for a term of one series the parallel term of the other. (1894, 449)

Mind and body, therefore, do not influence or interact with each other; physical sensations do not cause ideas, and volitions do not cause movement:

We may speak...of the influence of mind upon body, or vice versa. But...a direct causal influence cannot be exerted....Thus an external voluntary movement is not produced by the internal act of will, but by the cerebral processes correlated with it; an idea does not follow from the physiological excitations of the sensory centre, but from the [psychical] processes, sensational and associative, which run parallel to them. (1894, 449-450)

This seemingly paradoxical situation, in which physical and mental processes are correlated at one level and yet independent at another level, was the inevitable result of the two premises on which Wundt built his psychology. First of all, he accepted the "numerous experiences which put beyond all doubt the connection of physiological cerebral function...and...mental activity" (1894, 7). Second, he accepted "the very first rule of scientific logic, -- that only those connections of facts may be regarded as causal which obtain between generically similar phenomena" (1894, 6).

These two premises, however, led not only to Wundt's metaphysical position of psychophysical parallelism; they also provided the basis for his conception of psychological science. In his efforts to establish the autonomy of psychology, to prevent "the subordination of psychology to biology," Wundt "proceeded from the basic distinction between Naturwissenschaften and Geisteswissenschaften which was so characteristic of German academic life" (Danziger, 1979, 211, 206), and he separated the human, or psychological, sciences from the natural sciences. He went even further, however, and also "distinguished two kinds of psychology, physiological and experimental psychology, on the one hand, and social or ethnopsychology, on the other" (Danziger, 1979, 206-207). Danziger pointed out that the separation of these "two complementary halves" of psychology was made on the basis of the distinction between individual and social psychology.

Yet the distinction also -- and perhaps more fundamentally -- stemmed from Wundt's two postulates about mind-matter relations: that at an elementary level mental processes are correlated with physiological processes and that at higher levels mental processes form completely independent causal chains.

Thus, in Wundt's experimental psychology, or psychophysics, the psychologist studies the correlation of elementary physiological sensorimotor processes and the inner experience, or elementary mental sensations, associated with them. Yet Wundt explicitly rejected the materialistic reductionism to which the study of psychophysiological correlation could lead. Although psychophysics studies the connection of cerebral and mental activities, "baseless hypotheses regarding the dependence of mental function upon physical processes" result from the mistake of confusing one causal chain with another (1894, 7). Hence, in studying the higher phenomena of mental life, the psychologist turns from studying the elementary correlation of mind and brain to studying the independent mental causal chain, and psychology is thus rescued from being subsumed under physiology and is recognized as an autonomous science.

Wundt's separation of psychology into two branches, based on the two perennial but conflicting premises of psychology -- one being the assumption of psychophysiological concomitance, the other being the assumption of a causal chain of mental events -- had several important consequences. First of all, it set the stage for the fragmentation of psychology, in which different branches of psychology were separated not only by the kinds of phenomena they studied, but also by the principles of causality and the methods they applied to those phenomena.

Perhaps more importantly, however, this separation of psychophysiology on the one hand and "pure" psychology on the other hand made it easier subsequently for psychologists to ignore the problems and paradoxes raised by the enigma of "'concomitance' in the midst of

'absolute separation'." Like Bain, Wundt argued, in effect, that the only way to deal with the paradox that mental and physical events appear connected, but are so different that they cannot be causally connected, was simply to accept that "for psychology, as for physiology, the principle of psychophysical parallelism turns out to be an ultimate postulate, behind which it cannot go" (1894, 450). By accepting this dualistic parallelism as an ultimate postulate, psychologists could study psychology either from the point of view of physical causality (sensorimotor processes and psychophysical concomitance) or psychical causality (higher mental and social phenomena). They could ignore, however, the apparent incompatibility of biological determinism and mental efficacy. Although Wundt admitted that this return to a dualism of mind and matter may seem unsatisfactory and "in opposition to our justifiable endeavour after a monistic world-theory," it is nevertheless a necessary consequence of scientific analysis, which separates "idea and object" and hence divides "the experiential sciences into those of nature and mind" (1894, 450). With his acceptance of this "ultimate postulate" and his separation of the psychological and the natural sciences, Wundt, in effect, like most of his contemporaries, foreclosed any empirical attempt to push beyond the paradox of the dual assumptions that mental and physical processes are invariably correlated but that they are also conceptually distinct and hence causally independent. Metaphysics, he acknowledged, could pursue the "inquiry after a higher unity in which the dualism of the parallelistic principle may be resolved" (1894, 450); but any such attempts to go beyond the principle of psychophysical parallelism in understanding mind-matter relations are "the business not of psychology, but of philosophy" (1894, 451).

Another consequence of Wundt's systematization of psychology was that he found himself forced to ignore or distort phenomena that did not fit readily into his system. He was particularly dismissive of the phenomena

of modern spiritualism and of hypnosis, phenomena that suggested both that there were mental processes not subject to introspection by the normal waking consciousness and that these subconscious mental processes could have causal effects on physical systems. He confined his observations to the simplest phenomena, dismissing all reports of more complex or puzzling phenomena as unreliable (e.g., 1894, 328); and he was particularly superficial in his treatment of hypnosis, showing himself unaware of the broad range of complex phenomena elicited in the research of both British and continental investigators, as well as of the various hypotheses proposed to try to understand them (Myers, 1893c). Accordingly, he considered all the phenomena of hypnosis or spiritualism as readily explainable, the former by known physiological processes associated with sleep, suggestion, or automatic physiological functioning, the latter by fraud (1894, Lecture 22; 1879).

Wundt's hostility to the phenomena, however, seemed to stem, not only from the usual aversion of scientists to such phenomena as simply old superstitions in a new guise, but more specifically from their incompatibility with his assumptions about mind. For Wundt, the phenomena of hypnosis -- and indeed of all apparently subconscious phenomena -- lie outside the realm of psychology because, not being subject to introspection,

there can be no question of [applying] an experimental psychological method [to them]....[J]ust in the cases which present the most interesting phenomena, there is a total absence of any subsequent recollection. We can only infer what goes on in the mind of the somnambulist from his words and actions. (1894, 336-337)

Furthermore, since such subconscious processes do not form part of one's conscious experience, or the normal chain of mental events, they are, by Wundt's definition, not psychological at all, but are interesting only as examples of "an abnormal excitability of the nervous system" (1894, 328).

In objecting to subconscious phenomena as being outside the range of consciousness and introspection,

however, Wundt ignored the obvious fact that all scientific knowledge of mental processes, even that obtained from the introspective method, derives from "infer[ring] what goes on in the mind of the [subject] from his words and actions." Subconscious experience, therefore, is in principle as accessible to observation and experiment as is conscious experience, being limited only by the investigator's ingenuity in eliciting from the subject the appropriate words and actions.

Wundt's objections to spiritualistic phenomena were more complicated. First of all, he objected to them on methodological grounds: Sittings were not, he pointed out, adequately controlled by the investigators. The objection -- not at all a novel one by 1879 -- was valid for most spiritualistic observations; Wundt did not address the ones for which it did not seem valid. More fundamentally, however, he objected to spiritualistic phenomena because, he claimed, they contradict the scientific principle that all natural phenomena are lawful processes. According to Wundt, "the most conspicuous characteristic of these [spiritualistic phenomena] lies precisely in the fact that in their presence the laws of nature seem to be abrogated"; they cannot, therefore, be natural phenomena (1879, 581). Natural science is based on "the presupposition of an unchangeable order of occurrence" (1879, 581). Spiritualism, in contrast, according to Wundt, is based on the presupposition that "causality has a flaw," and hence its proponents insist that scientists "abandon the presupposition of a universal causality" and their "former view of nature" (1879, 583). Thus, "spiritualistic observation and natural science stand directly opposed to each other" (1879, 581), and, if the facts of spiritualism are true, then "all natural laws [would be] overthrown by the fact" (1879, 583).

One could, of course, argue (as Myers did) that phenomena that appear to contradict the present views of science may require an expansion of science, not its overthrow; but Wundt's objections to the phenomena associated with spiritualism went even further than their

apparent incompatibility with science. He also objected to them on moral and religious grounds. Wundt was apparently among that growing group of 19th-century people who believed that the duality of human experience required the separation, not just of natural sciences and human sciences, or of physiological psychology and "pure" psychology, but also of science and humanities. The relations between science, philosophy, and ethics were, in Wundt's system, curiously uneven. Science and psychology, he said, must be free from philosophical biases, but, conversely, philosophy must be based on scientific findings (1894, 2). Yet even though the aim of philosophy is to extrapolate from the data of experience and build "a coherent theory of the universe" (1894, 438), and even though there is "no concept so abstract, no notion so remote from the world of sense that it must not be represented in thought by some kind of sensible idea" (1894, 445), still morality -- which one would think would have some connection with philosophy -- "should remain untouched by the imperfections of the world of sense" (1879, 590). The phenomena of spiritualism, in Wundt's view, violated this separation of the two realms of human experience, and ran the risk of undermining this elevation of moral and ethical thinking above "knowledge and perception" (1879, 590) and of degrading it to a crude materialism.

Taking at face value the claim of ardent spiritualists that the phenomena in question testified to "the condition of the spirit after death" and that mediums were the "chosen instruments of Providence," Wundt understandably concluded that spiritualism was a "caricature...of a higher order of the world" (1879, 592). Moreover, the phenomena associated with spiritualism were dangerous because they had a "demoralizing influence" produced by "the corrupting effects of superstition" (1879, 592). In short, the reality of the phenomena was unimportant in comparison with their "corrupting effects." The idea that the reality of the phenomena, if established, might have

effects far more interesting and profound than the crude speculations of the spiritualists seems never to have occurred to Wundt.

Wundt understood that a psychology that blurred the distinction between mind and matter ran the risk of degenerating into a physiological reductionism that excluded the essence of human experience. Yet in attempting to redefine the boundaries between the world of mind and the world of matter, he failed to appreciate that this newly defined psychology ran its own risk of excluding vast areas of human experience, such as subconscious phenomena, that did not fit the redefined system. Perhaps of even greater consequence for psychology, however, was that, despite his insistence on keeping metaphysical assumptions out of psychology and on keeping morality separate from science, Wundt, like most other psychologists, in fact allowed his assumptions about the nature of mind, matter, and "supersensuous" phenomena such as ethics to influence, unseen and unacknowledged, the boundaries of psychology.

Pierre Janet (1859-1947)

Pierre Janet's general approach to psychology was, perhaps more than that of any other psychologist discussed in this chapter, closer to the approach adopted by the majority of psychologists who succeeded him in the 20th century. Ironically, although Janet -- a philosopher at Le Havre, physician at the Salpêtrière, and professor of experimental psychology at the College of France -- was a central figure in late 19th- and early 20th-century French clinical and experimental psychology, until recent years he had relatively little influence in psychology. Because of the decline of interest in 20th-century psychology in hypnosis, hysteria, and somnambulism, the predominance of psychoanalytic theory and its offshoots, the growing divergence of academic and clinical psychology, and Janet's own reticence to cultivate followers, his influence was for a time limited, at least until psychologists began once again to become interested

in the problems of subconscious phenomena on which he had worked and until Ellenberger's (1970) in-depth examination of his work re-awakened interest in him specifically. Nonetheless, Janet stood as an exemplar of the scientific psychologist: In his strict, positivistic avoidance of what he saw as metaphysical issues; in his insistence that psychology be a descriptive, not a theoretical, science; in his adoption of a methodological, linguistic parallelism that thereby avoids the pitfalls of physiological reductionism; and in his view of psychology as the study of the observable conduct, or functioning, of the organism, he represented the most important and influential trends in modern psychology.

The most fundamental characteristic of Janet's approach to psychology, and the one most reflective of the new scientific psychology in general, was his insistence that the question of the relationship between mind and body, or mental and physiological functioning, was an "altogether idle" question, of no concern or importance to the psychologist. Influenced particularly by Taine and Ribot, Janet, in rejecting metaphysical speculation for empirical observation as the method of psychology, rejected also the questions that had been central to the old metaphysical psychology: "There is no reason why we should begin over again here the old question about the physical and the moral [psychological], which, from a scientific standpoint, is altogether idle. The physician simply sets forth the phenomena" (1893/1901, xiii). The task of psychology, therefore, was simply to describe. With barely hidden disdain, Janet explained late in his career that, whereas some persons attempted to use psychological research to reach "the summit of the highest metaphysics, my old studies, very modest as they were, simply endeavored to throw light upon, describe and classify certain phenomena of pathological psychology" (n.d., 53-55).

For Janet, as for so many other psychologists, a working assumption of mind-brain unity, derived from the

general observations of mind-brain concomitance, provided a sufficient understanding of mind-matter relations for psychologists to proceed with their work. The word "mind" therefore denoted certain brain processes: "You will understand, once for all, that the word 'mind' represents the highest functions of the brain and probably the functions of the cortex" (1893/1901, 52). Psychological phenomena were those that are of "cortical origin" (1893/1901, 27). Thus, when Janet explained that he was studying functional, or psychological, disturbances rather than organic ones, he meant that he was studying "those which may be justly considered as cerebral -- namely, as psychologic" (1893/1901, 326). The paralyzes he treated were the result of "transitory modifications of the cells of the cerebral convolutions which manifest themselves in the form of a psychological disturbance" (1893/1901, 336).

Janet would not enter into discussions about what caused these modifications of the cerebral cells; "we do not permit ourselves metaphysical speculations on the unknown alterations of the cerebral cells" (1893/1901, 52). Nevertheless, he did allow himself to speculate that, in general terms, the cause was a weakness of the higher nervous system, or a loss of physiological energy, such that there was a fundamental disturbance in higher nervous system (that is, mental) functions. Thus, he said, hysterics and other "neuropaths" were "individuals whose central nervous system is weakened" (1907/1924, 311), and neurosis in general is a depletion of "our nervous system...a depression, an exhaustion of the higher functions of the encephalon" (1907/1920, 333). This depletion of energy could be brought on "by exhaustion of all kinds, organic ailments, and hereditary predispositions" (1930/1961, 128). Anything, in other words, that lowered an individual's nervous system resources, such as puberty, disease, physical or intellectual fatigue, emotion, or hereditary weakness, could lead to mental illness (1907/1920, 333); whether it actually did or not depended both on the amount of nerv-

ous energy expended and the amount of nervous energy one had to start with. Therefore, since "modifications of psychological energy...determine great changes in character and play an important part in most psychological disorders," the psychology of the future must "study the physiological production of energy and its distribution" (1930/1961, 132-133).

Yet once he had made it clear, "once for all," that "a mental malady is a cerebral malady" (1893/1901, 515), Janet proceeded to describe and discuss the phenomena he studied solely in psychological terminology. Thus, for example, he criticized those who approached hysteria as an organic disease, saying that hysteria is "a purely mental malady" (1907/1920, 277). There has, as a result, been some confusion about Janet's position, with some writers pointing out that "Janet was decidedly opposed to physiological explanation" (Sutcliffe & Jones, 1962, 242) and that Janet brought to medicine "a more psychological view of mental illness" (Perry & Laurence, 1984, p. 34), others noting "his preference for physiological hypotheses" (White & Shevach, 1942, 313).

The confusion disappears, however, when one recognizes that for Janet "there is no opposition between the definitions that gloriously entitle themselves physiological and those that modestly call themselves psychological" (1907/1920, 321), because they are, in fact, simply two different ways of describing the same phenomena. Like Taine, Janet believed that the differences between the physiological hypotheses and the psychological ones were "purely verbal differences" (1907/1920, 337); but since the psychologist's task is to describe and since, at this point in our knowledge, the psychological terminology is more advanced, accurate, and precise, then it is much to be preferred. Janet frequently objected to physiological hypotheses, such as when he observed that Charcot "sought these general laws [of hysteria] too much in the physiological domain" (1907/1920, 17); his objection, however, was not to physiological theories per se but rather to the tendency

of scientists (such as Charcot and Ribot, "two of my masters" [1907/1920, 3]) to pretend to a more precise knowledge of the physiology involved than they in fact had. Similarly, his colleague Pitrès was "in too great haste, we think, in translating these psychological facts, still vague as yet, into anatomical language, speaking of an encephalic centre of affective passions" (1893/1901, 377). Janet admitted that eventually enough may be known about the physiological processes involved to give a precise "physiological definition of hysteria"; but meanwhile, "a psychological definition is...the formula best able to sum up, simply from a clinical point of view, the great majority of hysterical symptoms" (1893/1901, 514-515). His objection to physiological theorists therefore was that they

take the most commonplace psychological definitions and replace their terms with words vaguely borrowed from the language of anatomy and the current physiological hypotheses....[T]hat hysteria will not be recognized later as resulting from some unknown disturbance of the secretion of a vascular gland or from some lesion of a nowadays badly defined nervous system, I should not dare assert; but...[for now] the psychological conception has the mastery. I again observe to you that I consider the pretended physiological definitions as mere translations of the psychological ideas. (1907/1920, 322-323)

Janet's position was, in short, that of an increasing number of his colleagues in psychology: Without generally acknowledging that he held any metaphysical position whatever, he nonetheless assumed a general ontological monism of mind and brain, while at the same time he insisted on a linguistic or terminological dualism that allowed one to describe and discuss psychological processes despite the lack of any knowledge of the presumed substratum of physiological processes.

This assumed monism of mind and brain led Janet also to take a definite position in the central 19th-century conflict over whether the nature of mind is fundamentally a multiplicity or a unity. Because all terms such as "mind," "mental," or "psychological" denote cerebral processes, mind was simply the aggregate of certain cerebral processes. For Janet, as for Ribot, mind was

(in James's words) a product rather than a principle, a unified system of elements rather than a unifying force. He unequivocally rejected the old idea of mind, or self, or human personality, as a simple unity for the new view of it as a complex compound: "The word 'consciousness'... means a rather complicated psychological operation, and not an elementary and irreducible operation, as is generally believed"; and "the word 'I'...designates something very complicated. The question here is of the idea of personality, of my whole person; it is the union of present sensations different from" the individual sensations that comprise it (1907/1920, 303, 305). Personality was an aggregate of elementary cerebral processes, and the development of personality involved the assimilation of "a psychological atom" into that aggregate, or the "enormous mass of thoughts already constituted into a system" (1893/1901, 34-35). Thus, "psychological life ...owes its apparent unity to synthesis alone" (1893/1901, 501).

From this view of mind or personality as atomistic, Janet derived his view of the nature of normal psychological functioning, which he described as "a twofold operation," the first stage being the production of the elementary sensations or "psychological atoms" and the second being the absorption of those parts into the larger structure:

First, there is produced in the mind, in the cortical cells of the brain, if we may so speak, a very large number of small, elementary, psychological phenomena.... Secondly, there takes place a reunion, a synthesis of all these elementary phenomena, which are combined among themselves and particularly combined with the vast and prior notion of personality (1893/1901, 35-36)

Not all psychological elements pass from the first stage to the second stage; most elementary sensations, in fact, are not assimilated into the complex that is personality or consciousness. They may "determine a few reflexes, awake perhaps a few little states of elementary consciousness, contribute, no doubt, to [one's] general state of well-being or discomfort, but [they] are not

clearly perceived by [one's] personality" (1907/1920, 306). Normal psychological functioning, however, is the result of those elements that are absorbed into the synthesis or field of consciousness that comprises personality.

Abnormal psychological functioning occurs therefore when, because of a general debilitation or weakening of the nervous system, fewer psychological elements are incorporated into the already existing synthesis. All the myriad symptoms of hysteria and other psychopathological conditions -- including loss of sensation (anaesthesia), loss of memory (amnesia), decreased volitional activity (abulia), impaired motor functioning or paralysis, changes in character or emotional reactions, suggestibility, fixed ideas, or somnambulism -- are the result of this contraction of the field of consciousness or decrease in the patient's ability to incorporate new elements into the personality. Janet's distinction between organic and functional (or psychological) disease was that in the former neither of the two stages of psychological functioning are operating, whereas in the latter only the second stage fails to occur. In other words, in organic disease, the psychological elements (or cortical alterations) are never produced or are destroyed; in functional disease they are produced and remain intact but are never assimilated into the personal synthesis. They are, in a word, dissociated from the complex that is personality. Hysteria is thus "a pathological incapacity to collect the elementary sensations in a general perception" (1907/1920, 172). The problem is not with the registration of the relevant traces or modifications in the brain, but with their incorporation into personal consciousness; the sensations "still exist on their account and even determine reflexes and usual movements," but they "can no longer be connected with the totality of consciousness" (1907/1920, 173). Whereas organic psychological impairment involves "the destruction of an idea," functional impairment involves "the dissociation

of an idea" (1907/1920, 173). In organic amnesia, for example, the loss of memory is "due to the destruction of traces...which the sensations leave in the brain," that is, "a definite and material destruction of the cerebral cells which have stored up these modifications" (1893/1901, 93). In functional amnesia, in contrast, "the elements of remembrance, the conservation and the reproduction of the images are intact; but there is a lack of the real synthesis of the psychological elements which suppresses, more or less completely, the assimilation of the remembrances to the personality" (1893/1901, 106).

Much of Janet's research, therefore, consisted of demonstrating that the pathological symptoms he encountered in his patients were psychological and not organic -- that the "psychological atom," or elementary modification of the cerebral cells, existed even if it remained outside the personal synthesis or field of consciousness. In this connection he conducted numerous experiments that revealed that hysterics did in fact sense what they were unaware of sensing (e.g., 1893/1901, 24-32). Moreover, his studies also demonstrated that, whereas in organic disorders the loss of function follows anatomical patterns, in functional disorders the loss follows a hierarchical or developmental pattern such as Hughlings Jackson had described for nervous system functioning. As the level of nervous strength is lowered, functions disappear in the order of how recent in the evolutionary development of the nervous system they are. Thus, the newer, more complex, less stable functions of the "higher" cerebral centers -- the "psychological" functions -- disappear first, whereas the older, simpler, more stable ones of lower brain processes -- the "automatic" functions -- remain (e.g., 1907/1920, 200-201, 333).

Janet's view of mind as the integrated functioning of the higher cerebral processes led him to maintain throughout his life that subconscious processes were always pathological, since, being dissociated from the

personality complex, they were evidence of an impaired nervous system. He recognized the relationship between suggestibility, somnambulism, hysteria, and hypnosis; but he went further and maintained Charcot's view, against findings apparently to the contrary (e.g., Wingfield, 1889), that somnambulism, suggestion, and hypnosis could be elicited only (or primarily) in hysterics (1893/1901, 269-277, 447-448, 517-518; 1907/1920, 5, 114-115, 286-292). Hysteria, he thought, should not be considered an abnormal subset of the phenomena of suggestion or hypnosis -- as maintained by Bernheim and the Nancy school, as well as by Gurney, Myers, and others associated with the SPR. Rather, the "tendency to suggestion and subconscious acts is the sign of mental [that is, cerebral] disease...[and], above all, the sign of hysteria" (1893/1901, 277).

Nevertheless, Janet's studies had also led him to recognize that psychological processes did not divide cleanly into the conscious, synthesized personality (whether one of normal, healthy scope or one of pathological contraction) and isolated, dissociated subconscious elements. In certain subjects the dissociated, unintegrated elements themselves began to coalesce into a new synthesis; what was dissociated, therefore, was no longer isolated elements but another personality system. This phenomenon, which Janet called somnambulism, raised the question, so poignantly addressed by Morton Prince in his discussion of the Sally Beauchamp case (Prince, 1905/1930): Which is the "normal" or "real" personality? Janet took the functional view that the more comprehensive, integrated state was the normal, healthy state, whereas the more contracted, limited one was the hysterical, abnormal state. In a case such as that of Dr. Eugène Azam's Felida, in which the second, or somnambulistic, personality was the more extensive personality, it represented "a momentary cure" (1907/1920, 90); the somnambulistic state was "simply the normal life, such as this subject would continually live if [she] were not ill" (1893/1901, 448).

Similarly, Janet's studies had shown that subconscious processes did not cleanly fit the pattern of simple dissolution, along Jacksonian hierarchical lines. Some subconscious processes seemed to become part of a newly evolving system of consciousness, and some of these systems evolved to a point at which they were equal or even superior to the original personality. As van der Hart and Friedman (1989) pointed out, it was "a paradox" of Janet's work that he set out to study hysteria as a lower form of mental activity and in the process discovered some higher forms of mental activity:

He had intended to study ways in which human activity in its simplest form manifested in hysterics. He found, however, certain of these dissociated elementary forms of activity were highly developed, including the ability to reason, to make judgements, sustain memories, etc. Contrary to what he expected, integrative and creative activities were present at the level of personality (complete with sense of self), but remained outside of personal awareness in the normal waking state.... Thus Janet's observations led from the hypothesis of the absence of the function of creative synthesis in the personality to the recognition of the presence of this function in a state which was dissociated from conscious awareness. (6)

Whereas Janet had intended to demonstrate his hypothesis that subconscious processes were the product of a pathological dissolution from a complex, integrated state to less complex, dissociated states, he had discovered that some subconscious states are as complex and integrated as conscious ones. His hypothesis of subconscious phenomena as dissociative seemed, therefore, not wrong but somehow incomplete.

Janet's conclusion that, in cases such as those of Felida and Miss Beauchamp, the somnambulistic personality was the healthy, "real" personality may have been medically -- that is, functionally -- adequate; in their new, more integrated states they led healthier, more normal lives. On a theoretical -- or even on a personal -- level, however, this conclusion seems less adequate. The hysterical personality was, after all, the older, original personality showing the usual continuity -- if not scope -- of memory and consciousness; the somnam-

bulistic, healthier personality, in contrast, was of relatively recent origin and had apparently begun as a dissociated psychological fragment. Janet was clear in his stance that the medical, practical criterion was the only factor worthy of a psychologist's attention. Instead of using subconscious psychological phenomena to address "the great problem of the connections between soul and body, between thought and brain," Janet reminded his readers that "I have something quite different to do" (n.d., 63, 62). Regardless of whether or not theoretical discussions of these larger issues lead to some knowledge of mind-brain relations, "that is quite another problem" from the practical problem with which Janet was concerned:

Far be it from me to discuss these fine theories which seduce certain minds by their scientific appearance, and which after all do probably contain some truth.... There are many...clinical problems of great importance which it seems to me must be studied..., and the very least of them is to my mind more important than all the huge tomes full of speculations put together. (n.d., 64, 66)

Janet's concern as a physician to cure his patients was understandable; but his naivety in thinking that psychology could be purely descriptive, positivistic, and functional without addressing basic underlying theoretical questions foreshadowed the inadequacy of some of his views, such as his view of subconscious processes as solely pathological, dissociative, and inferior; his view of psychological processes as cerebral elements or "traces" in the brain; or his view of personality as an atomistic structure consisting solely of those elements forming the synthesis we recognize as consciousness. A psychology in which basic theoretical questions were excluded as "metaphysical" and "idle" was like the proverbial house built on sand -- constructed perhaps from quality materials and with quality workmanship, but precarious nonetheless. Janet's own researches cried out for a deeper insight into the nature of the processes causing the "transitory modifications of the cells of the cerebral convolutions which manifest themselves in the

form of a psychological disturbance" (1893/1901, 336). He knew perhaps better than most psychologists "that we do not yet understand the enormous influence of the thought on the body" (1893/1901, 373), but he was content to fill that gap with descriptions of cases showing the influence of thought on body, "whatever be their cause" (1893/1901, 514). Yet this divorce of description and observation from larger orienting theoretical questions could only have the effect of limiting the completeness and effectiveness of those descriptions and observations. As Myers pointed out, although Janet's work was "full of new observations and reflections," it was also often "lacking in width of purview" (Myers, 1889g, 186, 191).

Janet's positivistic approach had not only led him to inadequate conclusions; it had also, in at least one instance, led him to drop, and eventually repudiate, one of his own potentially most illuminating lines of research. In the early 1880s he carried out a series of experiments with his patient Madame B., or Léonie (Janet, 1886/1968a, 1886/1968b) in which the experimenters attempted to hypnotize her or otherwise influence her behavior from a distance beyond her sensory range. He suggested that "in the light of the above-mentioned facts [reported in the papers], the supposition that our [that is, the experimenters'] thought can influence the subject...seems to have some likelihood" (Janet, 1886/1968a, 127). He rightly "abstained from drawing conclusions" and urged the need for more research "on this delicate subject which is as interesting to psychology as it is to physiology" (1886/1968a, p.131; 1886/1968b, 267). But he himself never pursued this further research, and by 1930 he was not only rebuking others who had tried to urge the importance of such research, but he was declaring that he had always been "skeptical as to mental suggestion and hypnotism from a distance" (1930/1961, 125) -- apparently forgetting that he had earlier expressed the opinion that that hypothesis had "some likelihood." For psychologists such as Janet, committed to the view that science and metaphysics are antithetical, any attempt to use one to

advance the insight of the other was "idle" and "a simple departure from more profound studies" (1930/1961, 125); and even the suggestion that a continuation of Janet's studies might reveal "unknown faculties of the human mind" was an "abuse of my former observations" (1930/1961, 125). Janet had been willing to conduct and describe experiments indicating that a subject could be hypnotized from a distance, until others began to consider possible theoretical implications of this research; Janet then abandoned this line of research entirely, eventually even repudiating and denying it altogether.

William James (1842-1910)

There is little room for doubt about the central role William James played in the establishment of psychology as an autonomous scientific discipline. Not only is his Principles of Psychology (1890b) considered a classic treatise and textbook in psychology, "probably the best-known book in all psychology" and one that immediately "established James as the foremost psychologist of the day" (Gregory, 1987, 395, 396); its wide-ranging impact can also be gauged by the present-day assessment of historian Jacques Barzun that it is "a masterpiece in the classic and total sense," that is, one that "ought to be read from beginning to end at least once by every person professing to be educated" (Barzun, 1983, 34). Perhaps the defining characteristic of the book is its anti-reductionism: James refused to allow the reduction of mental life to ideational or sensational elements, of mind to brain, of psychology to chemistry or physiology, or of human experience to philosophical systems. As a result, he firmly fixed psychology in its own domain as the study of experience -- that is, of thoughts and feelings as they are experienced, in relation to the whole of mental life at any given moment, rather than as isolated objects of analysis. James's primary aim in psychology was to restore to it an understanding of mind or consciousness, not as an ineffectual by-product of evolution, but as a fundamental and active agent both in the

functioning of organisms and in the evolutionary process. It is ironic, therefore, that it was William James who, despite his own deep interest in the basic problems and questions underlying psychology (and specifically and particularly in psychical research's approach to these questions), did more than perhaps any other psychologist to provide justification for psychologists to abandon basic questions.

For James, at the heart of psychology was the question of the relation of mind and body: "The real thing to aim at is a causal account; and I must say that that appears to be (provisionally at least) in the region of the laws as yet unknown of the connexion of the mind with the body. There is the subject for a 'science' of psychology!" (November 1, 1892 letter to James Ward). He agreed with his critic G. T. Ladd (Ladd, 1892) that psychology was not yet "a 'science' of the correlation of mental states with brain-states" (1892, 151); thus far, it was only "a mass of phenomenal description, gossip, and myth" (1892, 146). Nonetheless, it had a good basis in "an extensive body of rather orderly knowledge" about the correlation of mental states with other physical conditions (1892, 152), and, he said, "the ascertainment of the laws of such correlation [of mental states with brain states] forms the program of a science well limited and defined" (1892, 151).

Nevertheless, although James thus made it clear that our knowledge of the correlation of mind and brain was in its infancy, since "any exact account of brain states is at present far beyond our reach" (1892, 151), numerous aspects of his own work and thought fed the growing conviction among psychologists that the question of mind-body relations was an inappropriate question for science and that all that remained for science to contribute to it was to fill in details about which mental processes depend on which brain processes. As James himself recognized, "modern psychology, finding definite psychophysical connections to hold good, assumes as a convenient hypothesis that the dependence of mental states

upon bodily conditions must be thorough-going and complete" (1902/1958, 29). Without accepting that hypothesis himself, James had nonetheless done much to lead others to accept it unquestioningly by urging on them a "strictly positivistic point of view" as the only appropriate perspective for a scientific psychologist (1890b, vi). One of his primary aims in the Principles was to convince his readers that psychology as a natural science could never explain, but could only describe, mind-brain relations: "Psychology, when she has ascertained the empirical correlation of the various sorts of thought or feeling with definite conditions of the brain, can go no further...as a natural science. If she goes further she becomes metaphysical" (1890b, vi).

Yet there was much in the Principles to suggest to psychologists that they had already gone as far as they could go -- in a qualitative if not a quantitative sense -- in describing mind-matter relations. The fact of a general, neutral concomitance between mind and brain was well established: "Consciousness... 'corresponds' to the entire activity of the brain....[T]his formula...is... unobjectionable if taken vaguely, positivistically, or scientifically, as a mere empirical law of concomitance between our thoughts and our brain" (1890b, 177). This general law of concomitance is, at present, "the ultimate known law" (1890b, 346). Yet, James pointed out, if one attempts to go further and identify a more "elementary psycho-physic law" by learning "which mental fact and which cerebral fact are, so to speak, in immediate juxtaposition," one immediately encounters an apparently insuperable conceptual problem (1890b, 177). To discover this elementary law, one must first identify the minimal mental fact and the minimal physical fact which are connected. The minimal mental fact, in James's view, can only be an entire thought, as it is experienced; but what are the parameters of that thought? And what is the minimal physical fact to which it corresponds? The brain, he says, is made up of separate molecules, but the thought seems to correspond to the entire brain process

occurring at the time the thought occurs. Yet an "'entire brain-process' is not a physical fact at all. It is the appearance to an onlooking mind of a multitude of physical facts." It is, in short, a concept or "fiction of popular speech" and thus "cannot serve as the objectively real counterpart to any psychic state whatever" (1890b, 178).

Thus, when James went on to restate more explicitly his principle of positivism for psychology, it is difficult for the reader not to conclude that psychology as a science had in fact progressed as far in its understanding of mind-matter relations as it could:

a blank unmediated correspondence...of the succession of states of consciousness with the succession of total brain-processes...[is] the simplest psychophysic formula, and the last word of a psychology which contents itself with verifiable laws, and seeks only to be clear, and to avoid unsafe hypotheses. (1890b, 182, James's emphasis)

This "empirical parallelism...[is] the wisest course," and the positivistic psychologist will say only "that nature in her unfathomable designs has mixed us...of brain and mind, that the two things hang indubitably together and determine each other's being, but how or why, no mortal may ever know" (1890b, 182). Many psychologists, not surprisingly, concluded at this stage in the history of psychology, as James did at this stage of his book, that "we have now finished the physiological preliminaries of our subject and must...study the mental states themselves" (1890b, 183).

James argued for a positivistic psychology because he understood that science can study only phenomena, not metaphysical propositions as such souls or "mind-stuff": "We need a fair and explicit abandonment of such questions as that of the soul, the transcendental ego, the fusion of ideas or particles of mind stuff, etc., by the practical man" (1892, 149). He praised those who understood the need to separate the metaphysical from the empirical questions, and thus he argued that "almost all the fresh life that has come into psychology of recent years has come from the biologists, doctors, and psychi-

cal researchers" (1892, 149). Unfortunately, however, the border between the empirical and the metaphysical is not a clearcut one, and, indeed, progress in science often comes from those who remain in the gray border area and attempt to translate the latter into the former. This, in fact, was exactly what the psychical researchers James praised were attempting to do. James himself defined metaphysics as "nothing but an unusually obstinate effort to think clearly" (1890b, 145); and he reminded his readers that the empirical parallelism he urged his colleagues in psychology to adopt was "certainly only a provisional halting-place, and things must some day be more thoroughly thought out" (1890b, 182). Yet he had also urged his colleagues "to avoid unsafe hypotheses" by becoming strictly positivistic, and most of them did so by avoiding any topic that could be construed as metaphysical and thus by abandoning the question of mind-matter relations altogether. In these circumstances, clearly, if "things" were ever to be "more thoroughly thought out," it was not likely to be by psychologists.

In short, James's positivism encouraged the separation, rather than the interaction, of descriptive science and theoretical philosophy, and it thus led psychologists to abandon questions of major theoretical importance. Similarly, James's pluralism, developed and propounded by him to extend and broaden the study of human experience, encouraged psychologists to dichotomize and segregate, rather than try to integrate, various kinds of human experience and thus simply to accept, rather than be puzzled by and stimulated to consider further, paradoxes of human experience. James had intended his pluralism and radical empiricism to encourage the phenomenological study of human experience in its entire scope and variety and to discourage the intellectualist tendency to systematize too quickly and thereby to study only those aspects of thought or behavior that fit or confirm one's system. Behind this pluralistic, radical empiricism was his conviction that there was some truth

or validity to even opposing views: "James was... intent on giving each of them [opposing views] room to differ and to possess part of the truth without mutual cavil" (Barzun, 1983, 235). For example, in The Varieties of Religious Experience James described the differences between the mystical-religious and the rationalist-scientific approaches to knowledge. To the mystic, knowledge comes from inner experiences that are as

convincing to those who have them as any direct sensible experiences can be, and they are, as a rule, much more convincing than results established by mere logic ever are....[Y]ou cannot help regarding them as genuine perceptions of truth, as revelations of a kind of reality which no adverse argument, however unanswerable by you in words, can expel from your belief. (1902/1958, 72)

To the rationalist, in contrast,

all our beliefs ought ultimately to find for themselves articulate grounds...[including] (1) definitely statable abstract principles; (2) definite facts of sensation; (3) definite hypotheses based on such facts; and (4) definite inferences logically drawn. Vague impressions of something indefinable have no place in the rationalistic system. (1902/1958, 72)

James, however, argued that both "vague impressions" (feelings) and "logic" (intellect) have their place in human knowledge. In urging the importance of studying the "Unclassified Residuum," or phenomena that do not fit present scientific systems, he observed:

To no one type of mind is it given to discern the totality of Truth. Something escapes the best of us, not accidentally, but systematically, and because we have a twist. The scientific-academic mind and the feminine-mystical mind shy from each other's facts, just as they fly from each other's temper and spirit....[Yet] in psychology, physiology, and medicine, wherever a debate between the Mystics and the Scientifics has been once for all decided, it is the Mystics who have usually proved to be right about the facts, while the Scientifics had the better of it in respect to the theories. (1890a, 362)

James described other dichotomous views or approaches, similarly intending to inspire psychologists (and others) to look for the truth in both perspectives. Most of these dichotomies reflected the fundamental opposition that had developed between religion and science.

In the Principles, for example, James contrasted the teleological view that "the Kosmos [is] an expression of intelligence rational in its inward nature, ...that it is a realm of final purposes, that it exists for the sake of something," with the mechanistic view that "the present [is] only as so much mere mechanical sprouting from the past, occurring with no reference to the future" (1890b, 8). With this distinction made, he then wholeheartedly opposed the view that mind is a mechanistic automaton or reflex and endorsed the view that mental phenomena, unlike physical ones, are characterized by purpose or intelligence.

Likewise, he contrasted the personal and the impersonal views of life, distinguished by whether or not the personal significance and destiny of an individual being was considered important (1897/1961, 45; 1902/1958, 371); and he then argued that, even though the personal view had undoubtedly led to excesses and was thus not "a sufficient world-theory," nevertheless to dismiss it altogether was "a most shallow verdict" (1897/1961, 45). Since the personal view of life was "perennially fed by facts of experience," psychology must follow the lead of psychical research in studying these experiences and in attempting to halt the rapid divergence of mechanistic science and human experience, to "[bridge] the chasm, [heal] the hideous rift that science, taken in a certain narrow way, has shot into the human world" (1897/1961, 46):

The spirit and principles of science are mere affairs of method; there is nothing in them that need hinder science from dealing successfully with a world in which personal forces are the starting-point of new effects....[T]his systematic denial on science's part of personality as a condition of events, this rigorous belief that in its own essential and innermost nature our world is a strictly impersonal world, may, conceivably, as the whirligig of time goes round, prove to be the very defect that our descendants will be most surprised at in our own boasted science. (1897/1961, 47).

Yet James's own arguments for a positivistic psychology had sown the seeds that undermined the purpose that lay behind his pluralism and radical empiricism. Hoping

eventually to "bridge the chasm" and "heal the hideous rift" between diametrically opposed views and approaches, he had

thought it wiser to leave the thesis and antithesis dangling....It takes two opposing views to cut into a subject, just as a pair of scissors requires two opposing blades....Feeling that both views were valid in a context, he knew both must be right" (Allport, 1966, 146).

He had encouraged a broader and more diverse psychology, but he had also fostered the conviction among psychologists that when they had described "the bare phenomenal fact with no hypothesis" (1890b, 177), they had done as much as they could as psychologists: "The phenomena are enough" (1890b, 346). His positivism had discouraged psychologists from theoretical attempts to reconcile and unify diverse, pluralistic phenomena; the scissors with its opposing blades had been constructed, but it had not yet been put to use cutting into basic problems. James had encouraged this broad-based fact-gathering by emphasizing the antithesis, rather than the interaction, of fact and theory: "If the hard alternative were to arise of a choice between 'theories' and 'facts' in psychology, between a merely rational and a merely practical science of the mind, I do not see how any man could hesitate in his decision" (1892, 153). Moreover, for him it was sufficient simply to accept the pluralistic view "that the world can be handled according to many systems of ideas...each corresponding to some part of the world's truth, each verified in some degree, each leaving out some part of real experience" (1902/1958, 107, 108n). Whether the fragments would ever be put together into a larger understanding, "only the future can answer" (1902/1958, 108n). As a result, the opposing views were left "dangling," and the "rift" and "chasm" between the purposeful, personal view of the universe and the mechanistic, impersonal view, far from being bridged, continued to grow.

The extent to which psychologists, in following the positivistic, pluralistic path laid out for them by James, nonetheless diverged from the larger goals he had

in mind can perhaps best be understood by considering the extent to which they failed to take up "the general problem of the subliminal, as Myers propounds it, ... [as] one of the great problems, possibly even the greatest problem, of psychology" (March 3, 1901 letter to James Sully, quoted in James, H., 1920, 2:141). James said that "the really important part of these investigations [of subconscious phenomena] ... [is] their possible application to the relief of human misery.... [N]othing less than the cure of insanity -- that direst of human afflictions -- lies possibly at the end of such inquiries" (1890a, 371-372). Here again he emphasized a rigid dichotomy between a practical psychology and a metaphysical psychology: "The kind of psychology which could cure a case of melancholy, or charm a chronic insane delusion away, ought certainly to be preferred to the most seraphic insight into the nature of the soul" (1892, 153). As a result, psychologists in general failed to take up the question of subconscious phenomena as a problem of general theoretical import in psychology, and the study of such phenomena became more and more confined to the clinical or medical perspective.

Yet James himself had been intensely interested in subconscious phenomena because of their potential for increasing knowledge about the nature and extent of mind or human personality -- a question he labelled "Myers's problem" (1902/1903, 17; 1909/1961, 324). A study of subconscious phenomena was "destined to throw a new light into the very abysses of our nature" (1890b, 211), and hence was "of the most urgent importance for the comprehension of our nature" (1890b, 373). Nevertheless, in his zeal to purge psychology of the theoretical and philosophical excesses with which it had often been burdened, James led psychologists to abandon the basic theoretical questions with which even the most practical psychology must be guided if it is to achieve results of any lasting value. Subconscious phenomena, as James recognized, had much potential for shedding light on the fundamental question of whether mind or human personality

is "an elementary fact in nature" or, in contrast, "is but a passive resultant of the really elementary forces, physical, chemical, physiological, and psycho-physical, which are all impersonal and general in character" (1902/1958, 105). Yet psychology, transformed by James and others into a positivistic, pragmatic, and phenomenologically pluralistic undertaking, was no longer interested in such fundamental questions.

PART II - MYERS: EXPANDING PSYCHOLOGY

CHAPTER 5

PURPOSES AND PRINCIPLES: TERTIUM QUID

Background: Victorian Rationalism

John Stuart Mill (1806-1873) has been described as the "inspiration of later Victorian rationalism, which attracted many of the epoch's chief intellectuals" (Altick, 1973, 234). Even among those who disagreed with details of his empiricist philosophy, of his sociopolitical utilitarianism, or of his associationist psychology, his liberal and empirical approach to social and intellectual problems had widespread influence, particularly through his first book, the System of Logic (1843/1846). He articulated the belief that knowledge derives solely from experience and from scientific -- that is, deductive and inductive -- reasoning. According to Mill, there are two kinds of natural law: those that are always universal and those that are universal only under appropriate circumstances. In other words, there are, above all, the basic laws of nature -- the axioms, principles, or general propositions that are invariably valid, such as the principle of the uniformity of nature and, closely related to it, the law of causation or "the principle that every occurrence has a cause" (Schneewind, 1967, 317). There are also, however, the empirical laws of nature, or "regularities which hold as far as a limited experience shows but which, we have reason to believe, might well not hold under quite different circumstances" (*ibid.*). According to Mill, therefore, science is a process of both induction and deduction, in which basic laws are derived from empirical laws, and vice versa; and the ultimate aim of scientific knowledge is to show how the two types of laws are connected and "why the combination of circumstances and laws renders inevitable the limitations within which the empirical laws hold" (*ibid.*). For Mill and the many 19th-century thinkers who were influenced by him, not only physical

science but also knowledge about social, political, and even religious matters could and must rely on the empirical epistemological methods of science.

The impact of Mill's writings was particularly strong on intellectual circles at Cambridge in the 1860s; and it was to Cambridge that Frederic Myers came as a freshman in 1860 and where he remained (except for brief periods) until his death in 1901. Myers had been born at Keswick, England, in 1843, the son of a liberal clergyman who died when Myers was 8. His intellectual and creative abilities emerged early and remained intensely active the rest of his life: He was reading (the Bible) by the age of 4; he had memorized 560 lines from Macaulay's Lays at age 5 1/2 (Gauld, 1968, 41); in his youth he "gradually wrote out Bucolics, Georgics, Aeneid from memory" (Myers, 1893/1961, 10); and he won major prizes for his poetry both before entering Cambridge and while at Cambridge. At Cambridge he earned a First Class in both the Classical and Moral Sciences Triposes, and he began reading for the Natural Sciences Tripos (which, however, he was never given official permission to finish). In 1865 he was appointed to a fellowship and lectureship in classics at Cambridge, which he held until 1869. In that year, Myers's teacher and friend Henry Sidgwick had taken the audacious and courageous step of resigning his fellowship after he had concluded that he no longer believed in the articles of the Anglican Church which fellows were then required to support. Both Myers and Sidgwick, like many others at Cambridge influenced by Mill's liberalism, had become increasingly active in the movement to broaden the reach of higher education in Britain, and in 1869 Myers too resigned his fellowship at Cambridge -- in his case to work full time in this movement. For several years he devoted himself to working for women's education in particular. After the passage of the Education Act of 1870, he began work in 1872 as a government school inspector, and in 1875 he was appointed school inspector for the Cambridge District, a position he held for the next 25 years.

Myers's work in education, however, eventually provided simply the background and financial support for the real work of his life. Myers had grown up during "the very flood-tide of materialism, agnosticism, -- the mechanical theory of the Universe, the reduction of all spiritual facts to physiological phenomena" (Myers, 1893/1961, 15). Like many of the intellectual leaders of the mid-19th century, he had rejected the Christianity in which he had been raised because of its insufficient rational basis and, as he put it, "the need for an inward make-believe" that it required (Myers, 1893/1961, 13). Nevertheless, scientists such as many of those discussed in the preceding chapters were giving widespread currency to the new assumption that mind, consciousness, spirit -- the phenomenon of Life, in other words -- was a secondary byproduct of elementary material processes, and this assumption also seemed to him a gratuitous one that required closer scrutiny. In particular, he believed that it could be tested only by the scientific, or empirical, examination of all phenomena that suggested the primary or causal efficacy of psychological processes. After more than a decade of informally studying some such phenomena with friends and acquaintances, in 1882 Myers collaborated with a group of scholars, scientists, and other persons in forming the Society for Psychical Research, an organization intended to be the focal point for systematic effort to examine the assumption, increasingly entrenched in modern thought, that matter is, in the final analysis, the fundamental property of nature which has produced mind or consciousness and upon which mind is wholly dependent. And over the next two decades, Myers eventually became the focal point for the work of the SPR, arguing for the importance -- and the feasibility -- of questioning that assumption; identifying and describing phenomena pertinent to the question; and enunciating the principles and methods he believed to be the most appropriate for attacking the problem of mind or, as Myers termed it, of human personality.

"Tertium Quid"

Mill's liberal and empirical approach to social and intellectual problems was commonplace among mid-19th-century scientists, such as those discussed in Chapters 3 and 4. An equally important aspect of his approach was, however, less common among 19th-century scientists, particularly among those engaged in the difficult and controversial task of transforming the study of human nature and mind from a metaphysical to an empirical enterprise. As I pointed out in Chapter 2, for Houghton (1957) Mill was the exemplar of the kind of thinker who believes that knowledge advances when one extracts, from even opposing views and positions, the strong points and truths in them and then attempts to combine them into some new, broader, and more inclusive view. According to Mill, weaknesses and errors of thought can be attributed primarily to too little data, too narrow a perspective, or, "in a word, one-sidedness" (Schneewind, 1967, 315). Such an approach thus went far beyond merely being tolerant of opposing views; for those who agree with Mill that "both sides of the great controversies" are neither wholly "right, nor wholly wrong" (Mill, 1910, 2:360), it follows that one should actively seek and critically study opposing views in an effort to appropriate from them any and all elements that could be used in building a more accurate picture of reality. Moreover, by continually exposing ideas to new data and opposing perspectives, one could identify -- and attempt to eliminate -- weaknesses in those ideas.

I argued earlier, and hope to demonstrate in the rest of this thesis, that 19th-century psychical research, particularly in the work of Frederic Myers, became the stronghold not only for Mill's empirical approach to problems of mind and human behavior, but especially for Mill's (in Gurney's words) "tertium quid" approach to knowledge. Because the first generation of scientific psychologists, as represented by the scientists discussed in Chapters 3 and 4, had undertaken the formidable job of replacing one approach to psychology with a new and

entirely different one, their often strident partisanship was, up to a point, understandable and arguably necessary. Nonetheless, as I discussed in Chapter 2, scientific psychology by its very nature confronted scientists with problems and paradoxes unknown in other sciences. Scientific psychology was, unlike other sciences, an attempt to apply objective methods to essentially subjective phenomena. As a result, it intensified paradoxes that other sciences could avoid. First of all, it brought the essence of human experience -- volition -- into conflict with the essence of science -- determinism. It brought, in other words, the duality of human experience -- including that of mind and matter, cause and effect, free will and law -- into conflict with the fundamental principle of the continuity, uniformity, or unity of nature. The attempt to apply the analytic, reductionistic methods of science to the question of mind or consciousness also brought scientists face to face with the paradox of unity and multiplicity, of whether the essence of a phenomenon -- be it an atom or a mind -- lay in its wholeness or in its aggregate parts. Moreover, psychology raised the fundamental and never-before encountered problem of whether the essence of science itself lies in its method or in its principles -- or, more specifically, which of its principles are, in Mill's terms, basic laws of nature and which are empirical laws of nature.

Behind all of these problems and paradoxes lay the fundamental questions of psychology: What is the nature of what is variously called mind, consciousness, soul, personality? How can mental phenomena be reconciled with physical phenomena? Is mind derivative from, and hence secondary to, matter, or is it itself a primary, causal feature of nature? Does the observed correlation, or concomitance, of mental functioning and nervous system functioning imply the one-way dependence of consciousness on brain, or is there instead a two-way interaction suggesting a more equal status in nature for consciousness and matter? The attempt to apply scientific methods and

principles to the problem of mind made such questions unavoidable. Yet, as I tried to show in Part I, most scientists, including psychologists, did ultimately avoid them. Instead of moving beyond the old dualism that had proved so unsatisfactory to the modern scientific mind, they set up a new dualism in which paradoxes were resolved by placing the conflicting elements of experience into different categories of thought. They dealt with the anomaly of volition in an otherwise deterministic nature by narrowing science, by defining it as a specific world view that excluded mental causality, rather than as a general epistemological method that might, in principle, ultimately be able to incorporate mental causality in an expanded view of nature. In psychology, they dealt with the problem of mind by segregating it from the problem of matter, by establishing a conceptual parallelism that allowed psychologists to examine one or the other set of phenomena but did not allow them to move beyond the vague assumption of psychophysical unity and examine the actual nature of that concomitance. Caught in the apparently unyielding dichotomy of materialistic naturalism and dualistic supernaturalism, scientists felt compelled to choose one or the other position; and, paradoxically, in so doing they further entrenched the rift between mind and matter that they had initially intended to abolish.

Myers saw quite a different option. In his view, the really interesting work in science, and the real challenges, do not end but begin precisely when one comes up against two contradictory findings, or positions, or theories. He, like Mill, believed that conflicting positions suggest the need for a broader conceptual framework, which requires both more information and the wider view that that information brings. The really good work in science, therefore, and the real breakthroughs occur when one continues to compare conflicting data and ideas until a new picture emerges that can put conflicts and paradoxes in a new light or a larger perspective. In particular, one will never resolve conflicts, or move

beyond paradoxes, without continually re-examining the assumptions that gave rise to the conflicts in the first place.

The Empirical Approach

It is readily apparent from even a brief glance at Myers's writings that his primary and ultimate concern was with the question of whether individual personality or consciousness survives death. His interest in psychology and in the problem of the relation of mind and body was no mere academic interest, but was of concern to him for the very practical and direct reason that it is of concern, at some time, to all individuals who feel any attachment to life or to other individuals and who are aware of their own inevitable death and that of everyone around them. As he expressed it,

the question for man most momentous of all is...whether or no his personality involves any element which can survive bodily death. In this direction have always lain the greatest fears, the farthest-reaching hopes, which could either oppress or stimulate mortal minds. (Myers, 1903, 1:1)

Whether individual persons are isolated, temporary products of natural processes occurring independently of themselves, or whether they are in some sense conscious, permanent participants in those processes is the question with the most profound implications for how one lives and interacts with other persons. If death, Myers said, marks the end of an individual -- of individual consciousness, mind, self, soul, personality, or whatever we choose to call it -- "then any human conception of a moral universe must simply be given up. We are shut in land-locked pools; why speak to us of an infinite sea?" (Myers, 1900c, 121).

Religion and philosophy, of course, had always attempted to provide answers to this question of survival, but for Myers belief in religious and philosophical proposals was insufficient, and indeed impossible, without the rational grounds of empirical observation to support them. Like many of his contemporaries, Myers had come to accept the empirical methods of science as the

only reliable and ultimately successful means of gaining knowledge. Thus, knowledge about "the existence, the powers, the destiny of the human soul" (Myers, 1903, 1:1) could only be attained "in the same way as we have attained knowledge about physical things" (Myers, 1881, 103), by "those methods of inquiry which in attacking all other problems [man] has found the most efficacious" (Myers, 1903, 1:1). Knowledge could not, in other words, come from "fondling hallowed traditions" or "juggling with metaphysical terminology"; it was "not attainable in any other way" than "by observation and experiment," by "an inquiry resting primarily... upon objective facts actually observable, upon experiments which we can repeat to-day, and which we may hope to carry further to-morrow" (Myers, 1900b, 456; 1903, 1:7).

Myers was clearly aware that science and intellect are limited modes of human experience. A person whose intensely poetic and emotional nature was vividly apparent in all his writings, he recognized that science and intellect may not provide a person's "only or his deepest insight into the meaning of the Universe," and that "contemplation, revelation, ecstasy, may carry deep into certain hearts an even profounder truth" (Myers, 1900c, 114). He recognized also that science "rests on assumptions which we cannot fully prove; or which even indicate, by their apparent inconsistency, that they can be at best but narrow aspects of some underlying law imperfectly discerned" (*ibid.*). Nonetheless, for Myers as for an increasing number of people in the modern world of the 19th century, science, "a narrower, but a more stable range of demonstrated fact," was more satisfying than "Tradition and Intuition." We must recognize the limitations, he said, of scientific inquiry,

just as we admit the inadequacy, the conventionality, of human speech itself. Speech cannot match the meaning which looks in an hour of emotion from the eyes of a friend. But what we learn from that gaze is indefinable and incommunicable. Our race needed the spoken and written word, with all its baldness, if they were to understand each other and to grow to be men. So with Science as opposed to Intuition. Science forms a language common to all

mankind; she can explain herself when she is misunderstood and right herself when she goes wrong; nor has humanity yet found...that the methods of Science, intelligently and honestly followed, have led us in the end astray. (Myers, 1900c, 114)

In other words, whereas religion or metaphysical speculation may bring private conviction, only the scientific method can provide public knowledge:

Religions and philosophies...are but balloon-flights which have carried separate groups up to the mountain summit, whither science at last must make her road for all men clear. It is by breach of continuity... that they have been able to soar so high. For Science, on the other hand, the continuity of the Universe is in fact its key. (Myers, 1903, 2:261)

The Principle of Continuity

For Myers, Mill, and virtually all 19th-century scientists, the continuity or uniformity of nature had emerged as the one most fundamental principle guiding modern scientific knowledge: "If Nature is to be intelligible to our minds she must be continuous; her action must be uniformitarian and not catastrophic" (Myers, 1895a, 22). The ultimate consistency of the universe was one of those "assumptions which we cannot fully prove" but on which science depended entirely:

The faith to which Science is sworn is faith in the uniformity, the coherence, the intelligibility of, at any rate, the material universe....[I]f any phenomenon...seems arbitrary, or incoherent, or unintelligible, she does not therefore suppose that she has come upon an unravelled end in the texture of things; but rather takes for granted that a rational answer to the new problem must somewhere exist, -- an answer which will be all the more instructive because it will involve facts of which that first question must have failed to take due account. (Myers, 1900c, 120)

The faith to which Myers and his colleagues in the SPR were sworn -- "the one dogma which that Society holds in corporate fashion" (Myers, 1894-1895, 190) -- was that all phenomena -- mental and material, normal and abnormal, commonplace and rare -- are in some sense continuous and coherent and thus amenable to the rational, empirical methods of science:

We adopt the ancient belief...that the world as a whole, spiritual [or mental]¹ and material together, has in some way a systematic unity; and on this we base the novel presumption that there should be a unity of method in the investigation of all fact. We hold therefore that the attitude, the habits of mind, the methods, by aid of which physical science has grown deep and wide, should be applied also to the spiritual world. (Myers, 1900c, 117)

The rationale behind the development of the new scientific psychology of the 19th century had been this belief that the same attitudes and methods must be applied in psychology as well as in other areas of human knowledge. Myers realized, however, that the principle of continuity implied more than simply uniformity of approach; it also implied that if true knowledge about mental phenomena were to be attained, scientists had to achieve some understanding of the continuity between mental and physical phenomena -- in short, of the nature of the relationship between mind and matter. Myers credited primitive peoples with having "dimly felt after a principle of continuity," with the result that in their notions about souls and survival they had developed what he considered to be rather crude, materialistic ideas about the relationship of mind and matter. Yet "where the savage assumed too little difference between the material and the spiritual world the [modern] philosopher has assumed too much. He has regarded the gulf as too unbridgeable" (Myers, 1903, 2:252). And even among 19th-century scientists who professed to reject the old dualism of mind and matter in the name of scientific continuity, the failure to address directly the conflicts and paradoxes of mind and matter and to try to resolve them in some more coherent picture simply created a new dualism, as antithetical to the scientific principle of continuity as the old one had been, and led them to segregate from science certain phenomena, such as consciousness and volition, which they could not deny but also could not fit coherently into the scientific world view.

The principle of continuity had also, however, led many 19th-century scientists not simply to segregate but to reject outright certain other phenomena or ideas, such

as mesmeric phenomena, telepathy,² or the idea of survival after death. As Myers understood, "the difficulty of belief is not so much in defect of trustworthy evidence as in the unintelligibility, the incoherence of the phenomena described, which prevents them from being retained in the mind or assimilated with previous knowledge" (Myers, 1903, 2:505). Unable to connect the phenomenon to any known process of psychophysiological functioning, most scientists rejected a report, for example, that a woman had seen an hallucination of her brother's death by drowning some hours after his death but before the news arrived by telegram (Sidgwick, 1891, 32-35):

These resolute antagonists mean that no new evidence can carry conviction to them unless it be continuous with old evidence; and that they cannot conceive that evidence to a world of spirit can possibly be continuous with evidence based upon our experience of a world of matter. (Myers, 1903, 2:2)

In short, the refractory phenomena of psychology and psychical research -- phenomena such as volition or telepathy -- that seemed to contravene known scientific principles were either denied or were maintained by a discontinuous segregation from other aspects of knowledge. Myers, agreeing with the premise of the "resolute antagonists," rejected their response. He acknowledged that "I have myself felt the full force of this objection [of discontinuity], and I believe that some effort to meet it has become absolutely needful" (Myers, 1903, 2:505). He emphasized repeatedly that "I agree with this demand for continuity" (Myers, 1903, 2:2) and that "the principle of continuity...has guided us throughout this work" (Myers, 1903, 2:202). His response to apparent discontinuity of phenomena was not, however, either to deny or to segregate the problematic phenomena but to assume that continuity or coherence was in fact there, waiting to be discerned. Those who banned certain phenomena or questions from scientific inquiry showed, he thought, "a want rather than an excess of confidence" in "the immutable regularity" of nature (Myers, 1881, 99). Myers, in contrast, had full confidence in the ultimate

regularity and rationality of all phenomena and thus in the methods of science to weave, in principle, any apparent loose end into the fabric of knowledge; and the principal task for psychical research, as for psychology in general, was to discover the continuity between apparently conflicting phenomena, "to bring our theories [and phenomena] into harmony with established physiological facts" (Myers, 1885c, 124); and to show "at what points our inquiries touch the recent results of science" (Myers, 1886b, xxxix). The model that Myers therefore held up to psychologists and psychical researchers was biology, "the science which on the whole approaches the closest to our own inquiries." Myers considered biology a model science because it now had a major guiding theory -- that of evolution,

the doctrine that the whole cosmical order is the outcome of a gradual development...a working hypothesis which covers enough of the known facts of the universe to make its possible extension to all facts a matter of hopeful interest...a co-ordinating and continuous principle of unity which renders it in some respects the best type of a true science which we possess. (Myers, 1886b, xxxix-xl)

The goal for psychology, he believed, was likewise to develop "a co-ordinating and continuous principle of unity" that would extend to both the psychical and physical sides of psychological phenomena, not just one or the other (1886b, xl-xli).

Expanding Science

For Myers, therefore, because he so fervently believed in the continuity and rationality of the universe, even questions so complex and apparently beyond the reach of human experience as the question of survival could be approached, and knowledge pertinent to them attained, precisely because of the continuity of all phenomena. The first step was to recognize that the split between science on the one hand and religion, metaphysics, and philosophy on the other had occurred because people's need for answers to questions about their place, role, and destiny in the world outstripped

their actual available knowledge: "The divorce of Religion from Science" began when man's "need of a theory of the unseen world...went far beyond what his scraps of experience could tell him," when he asked "question[s] to which he could not find, yet would not wait for an answer" (Myers, 1900b, 115). Religion and metaphysics, in short, had provided answers where there was no empirical knowledge; science, on the contrary, could provide empirical knowledge, even though final answers were necessarily always beyond reach. Religion and metaphysics had attempted to deal immediately with the highest questions, but science could work only with observable phenomena of experience: "We cannot get any nearer to the truth" than what we perceive in and infer from phenomena that we can observe (Myers, 1885c, 126), and "we can devise no way whatever of bringing them [the highest questions of philosophy] to scientific test. They deal with infinity; and our modes of investigation have grasp only on finite things" (Myers, 1903, 2:79). Yet even though many questions for which we would like answers are ultimately unanswerable, knowledge pertinent to them can be built up, like any knowledge, bit by bit, from observable phenomena. Such a gradual, even indirect, approach to knowledge is slow; the "inquiry must be extended over many generations....[T]here are no shortcuts to mastery" (Myers, 1894-1895, 198). Nevertheless, it is in the long run more sure: "Great convictions are sounder and firmer when they are of gradual growth" (Myers, 1903, 2:79).

Thus, Myers thought, if we wish to address important, complex questions, those questions must continually serve as clearly visible guideposts; but we must not begin with "the wrong end" of the inquiry, that is, "with the highest generalisations....[W]e must learn first not what we are most eager to learn, but what fits on best to what we know already" (Myers, 1881, 102-103). This did not mean reducing the unknown to the already known; it meant instead linking the unknown to the already known by a series of continuous steps and thus, potentially, expand-

ing the conceptual and theoretical framework of science to accommodate the now unknown.

Moreover, instead of abandoning important, complex, and difficult questions as beyond the finite reach of human intellect, those who want to advance knowledge concerning such questions must begin by translating them from abstract, metaphysical questions into empirical ones (Myers, 1885c, 127). Myers's review, for example, of William James's Principles of Psychology (Myers, 1891d) was a plea, in opposition to James's positivistic separation of metaphysics and psychology, to try instead to translate the former into the latter, and thus to attack large questions by an "attempt to give [them] a precise, an experimental character" (132). An optimist by nature, Myers fervently believed that progress of all kinds is aided by the motivating power of an ideal goal, and is inhibited by lowering one's expectations.³ Thus, whereas James had warned that the data of psychology cannot provide answers to fundamental, metaphysical questions, Myers agreed but then turned the issue around and argued instead that fundamental questions provide the guidance and direction for producing the data -- and ultimately the knowledge -- of psychology. Whereas James had emphasized the limitations of psychology, Myers in contrast wanted to awaken scientists to a sense of the potential power and scope of psychology. We may, he said, so far have insufficiently appreciated "how very far...the possibility of experiment may extend" (Myers, 1891d, 119). The dilemma of free will versus determinism, for example, is clearly a metaphysical, and ultimately unanswerable, question. We can, however, try to "reduce this to an experimental question" -- and in the process perhaps open the door to alternate ways of conceiving the problem other than in the rigidly polarized positions of mechanistic determinism or uncaused free will -- if we ask "whether molecular movements are ever determined by a cause other than any known molecular force" (Myers, 1891d, 130), specifically, whether we can demonstrate the action of one mind on

another (such as in Janet and Gibert's experiments on suggestion at a distance) or the action of one mind on distant matter (that is, in Myers's terminology, telekinesis). To those who attempted to limit, on the basis of our present knowledge, what we can and cannot subject to scientific inquiry, Myers replied: "Which is the mystical, which the scientific course? -- on the one hand to ignore these deeper problems...or, on the other hand, to attack them with conscious weakness indeed, conscious inadequacy?" (Myers, 1891d, 132).

In short, the major motivation behind psychical research was to take the first tentative, empirical steps toward elucidating, if not resolving, larger problems, rather than to allow such problems to be abandoned as insoluble: "Such confrontations with metaphysical problems reduced to concrete form are a specialty of our research" (Myers, 1894c, 421). Myers believed that the limits of science are fixed only by our ingenuity in translating large, metaphysical problems into finite, empirical ones, never by the topic of the questions involved. He and his SPR colleagues rejected the idea that a distinction could be made between legitimate and illegitimate phenomena and topics for scientific study, the illegitimate being those "not in obvious conformity with established conventions," or, in other words, with the present world view of scientists (Barrett, Massey, Moses, et al., 1883, 149). In this connection he (like James) called attention to the danger to science of "the instinct of system, of a rounded and completed doctrine" that prematurely delimits what science can and cannot address: A "determined protest against premature synthesis is as much needed now as ever" (Myers, 1889j, 392). In particular, this protest was directed against limiting science to the subject matter, methods, and concepts of the physical sciences by conceding prematurely that questions about the nature of the relationship between mental and physical phenomena -- going beyond the vague assumption of concomitance --are scientifically unapproachable. Instead, "the only line of demarcation

which science can draw, -- is between things which can, or which cannot, be cognised by our existing faculties," a line which is by no means

permanent and immovable....On the contrary, it is the continual work of science to render that which is incognisable cognisable, that which is imperceptible perceptible....Aristotle...relegated his unknowable to the fixed stars...but we have no more reason than he had to take our [present] mental horizon for an objective line. (Myers, 1881, 103)

Myers's goal, therefore, as well as that of most of the early psychical researchers, was "the application, as far as possible, of the scientific method to problems hitherto left to metaphysical or religious speculation" (Myers, 1887a, 132). Their aim was "far wider than the mere exposure of fraud... [or] the mere production of specimens of patient and intelligent investigation. [It] is not the founding of a new sect, nor even the establishment of a new science, but is rather the expansion of Science herself" to address problems "which Science must needs set forth, if her methods and her temper are to guide and control the widening curiosity, the expanding capacities of men" (Myers, 1900c, 125; 1886b, xxxvi).

The Question of Psychophysiological Concomitance

Myers thus defined experimental psychology as "the attempt to attack the great problems of our being," not by metaphysics or introspective analysis but by the methods of the natural sciences (Myers, 1885d, 637); and he thus argued that "the question of the survival [after death] of man is a branch of Experimental Psychology" (Myers, 1891e, 644). The first step toward transforming this question from a transcendental one to an empirical one was to recognize that the key issue behind it was the same as the key issue behind psychology: the nature of the relationship between a mental phenomenon and its physiological substratum, especially whether personal consciousness is wholly dependent on a particular configuration of molecules. His approach therefore was not simply to learn whether there were any phenomena suggesting survival, but -- more importantly for one who

believed so strongly in the necessary continuity of all phenomena -- whether human personality is of such a nature that it could conceivably survive. He rejected the idea that there must be -- even could be -- radical discontinuity between premortem and any postmortem existence. The principle of continuity demanded that "if an unseen world exists" -- if, in other words, there is some mode of existence not presently perceptible by us -- then "we must in some sense be in it" now (Myers, 1891e, 634). If mind or personality can exist in some phenomenal form other than the familiar biological one, then this "must needs be a great structural fact of the Universe" (Myers, 1903, 2:288).

Before addressing such a question as survival, therefore, we had to have a far greater understanding of living personality (Myers, 1891d, 121; 1903, 1:9), since a pre- and postmortem personality must in some sense be continuous in nature. The most fundamental fact about personality is that it is partly physiological, partly psychological: "To every observable thought or emotion of man there probably corresponds some change or movement in the material substance of the brain" (Myers, 1891e, 635). Yet this observed "parallelism between psychical and cerebral energies" tells us nothing, in fact, about their actual relationship: "As to the origin or essential significance of this close connection of 'psychosis' and 'neurosis'⁴ we avowedly know nothing at all" (Myers, 1891e, 635). Moreover, merely continuing to observe the parallelism would not advance our knowledge in any qualitative sense: "The exacter correlation can tell us little more than the vaguer told us -- little more than we had always known" (Myers, 1891e, 635).

To advance our understanding of the relationship between mind and brain beyond the long-recognized but little understood parallelism, Myers believed that psychologists needed to move beyond simply observing that for every mental fact there is a corresponding physical fact and needed to begin to study those situations in which the ordinary balance between mental and physical

functioning seemed to be altered. Abnormal, unusual, or subconscious psychological phenomena could, he thought, provide the greatest insight "into the mechanism of our most inward being" (Myers, 1885b, 61) because they provided an opportunity for "studying the machinery thus thrown slightly out of gear, ...isolating and exaggerating one process after another for more convenient scrutiny" (Myers, 1885d, 637). In particular, abnormal states such as hypnosis, hysteria, somnambulism, or trance often seemed to show in relief certain latent capacities, including exaggerations of ordinary sensorimotor functioning -- hyperaesthesia, for example -- or, occasionally, unfamiliar modes of functioning -- say, telepathy. Studying alternate "patterns" of personality, in other words, "may reveal elements absent from other patterns" or "teach us...something fresh as to the elements already known" (Myers, 1892f, 367).

The study of subconscious phenomena was therefore important because it was revealing that mind is greater, not only in extent but in ability, than had previously been thought. It was indicating, Myers thought, that "no known form of human consciousness manifests...the total Self;...we...can only discover indirectly and inferentially, by experiment and artifice, the extent of our intellectual being" (Myers, 1891e, 637). What was particularly needed now, however, was a study of subconscious phenomena undertaken from a purely psychological, scientific perspective and not, as in most previous studies, from a clinical perspective. In other words, although subconscious phenomena were beginning to be widely studied as a medical problem, Myers believed that it was even more important for them to be studied as a general theoretical problem in psychology. Yet general scientific or psychological -- that is, theoretical -- purposes had thus far been almost completely neglected. The study of hallucinations, for example, "has usually been undertaken with a therapeutic and not with a purely scientific purpose," with the result that pathological aspects of hallucinations have been noted and emphasized,

rather than their "absolute psychological significance" (Myers, 1892e, 342). Similarly, Myers believed that hypnotism was one of the greatest potential methodological tools for psychologists because with it "we can fairly hope, by experiments made no longer at random, to reproduce and systematise most of those phenomena of spontaneous somnambulism which once seemed to lie so tantalisingly beyond our grasp" (Myers, 1903, 1:157).

Yet, here too, in the burgeoning study of hypnosis, we have to regret the lamentable scarcity of purely psychological experiments over the whole hypnotic field. We are habitually forced to base our psychological inferences on therapeutic practice; and in directions where there has been no therapeutic effort there are gaps in our knowledge, which those hypnotists who have good subjects at their disposal should be invited to fill up as soon as may be. (Myers, 1903, 1:191)

Even hysteria, clearly a severe clinical problem and understandably emphasized as such, was also an important potential source of knowledge about psychophysiological functioning (Myers, 1893d; 1903, Chapter 2). Hysterics showed a subconscious control over physiological functioning, such as hysterical anaesthesias or stigmata, practically unknown in normal conditions. Hysteria was thus "in some ways a better dissecting agent than any other" for isolating and studying certain psychophysiological functions, involving both "acquisitions as well as losses of faculty" (Myers, 1903, 1:65, 66). Moreover, hysterical disorders often mimic neurological disorders: "The symptoms of hysteria form...a series of phantom copies of real maladies of the nervous system....[But they] are often due...not to purely physiological, but rather to intellectual causes" (Myers, 1903, 1:43). A comparison of hysterical and neurological disorders could therefore perhaps reveal much about the nature and extent of psychological processes as causal processes, especially the degree to which they are dependent on neurological conditions or, conversely, may themselves alter neurological conditions. What was needed, however, was "a wider purview than the mere pathologist's" --that is, a psychological or

theoretical, rather than medical, perspective (Myers, 1892c, 304):

Myers also emphasized that subconscious, abnormal phenomena were important to study precisely because they are rare, anomalous phenomena. In opposition to psychologists who emphasized the study of normal psychological phenomena because, they thought, this approach would yield more findings of general practical utility, Myers was

in no wise deterred by the fact of the apparent uselessness of some of them [unusual faculties] for our waking ends. Useless is a pre-scientific, even an anti-scientific term, which has perhaps proved a greater stumbling-block to research in psychology than in any other science. In science the use of phenomena is to prove laws, and the more bizarre and trivial the phenomena, the greater the chance of their directing us to some law which has been overlooked till now. (Myers, 1903, 1:150)

In fact, he said, "the more rare and useless the faculty, the more interest it has" as a clue to the nature and mode of psychological functioning (Myers, 1898b, 103):

We must guard against confusing importance for immediate practical life with importance for science....[It] is not the broad and obvious phenomena, but the residual and elusive phenomena, which are oftenest likely to introduce us to new avenues of knowledge. I wish to persuade my readers that this is quite as truly the case in psychology as in physics. (Myers, 1903, 2:86)

In short, "experimental psychology cannot afford to push aside...the anomalies, the residual phenomena" (Myers, 1892g, 444).

On the other side of the psychological equation, just as subconscious phenomena were showing mind to be more extensive and of a different nature than previously thought, so 19th-century physics was showing the physical universe to be more extensive -- and even of a different nature -- than previously thought. The discovery and study of electromagnetic radiation in particular had begun to reveal just how narrow and limited our sensory perceptions are: "Our knowledge of the visible solar spectrum is but an introduction to the knowledge which we hope ultimately to attain of the sun's rays. The limits

of our spectrum do not inhere in the sun that shines, but in the eye that marks his shining" (Myers, 1903, 1:17). The physicist William Barrett, a colleague of Myers's at the SPR, pointed out that whereas the human eye is limited in the range of radiation it can detect, other eyes might have different ranges; and "we should expect that the collective visual power of the whole of animal life would far transcend the range of vision of any single individual" (Barrett, 1895, 24). To those whose thinking about the nature of psychophysical processes was circumscribed by their assumption that our perception of the physical world is somehow a benchmark, Myers cautioned that "Science, while perpetually denying an unseen world, is perpetually revealing it" (Myers, 1881, 103).

The discovery of radiation had led 19th-century scientists to conclude that there exists an ether -- a homogeneous, frictionless, non-material substance filling what we perceive as "empty" space, which serves as the transmitting medium for light and electromagnetic forces. Subsequent physics erased the need for this particular concept of ether; but, if anything, it further validated the larger idea behind the concept of ether -- and the one that was of especial significance to Myers -- that the imperceptible range of the material universe far exceeds the few aspects of it that are perceptible to our normal, unaided senses. The study of light, said Myers, had led to the discovery of "the etherial environment -- a system of laws, that is to say, which while fundamentally continuous with the laws of matter, does yet supply a new conception of the Cosmos, at once more generalized and more profound" (Myers, 1900b, 118). It was "more profound" because the expansion of our knowledge "into regions of rays which no senses born within us have enabled us directly to discern" (Myers, 1894-1895, 196) implied that we have not yet exhausted our potential knowledge of environments co-existing, undetected, with the perceivable world. Science cannot "conjecture beforehand how many distinct but coexisting environments may now surround us....Her own history has been one of

constantly widening conceptions" (Myers, 1894-1895, 195). In a prescient remark preceding the upheavals in scientists' conception of space, matter, and time brought on by 20th-century physics, Myers suggested that "in a universe...where a world of ether coexists with a world of matter...[we] must be ready to conceive other invisible environments or co-existences, and in a sense to sit loose to the conception of Space, regarded as an obstacle to communication or cognition" (Myers, 1903, 2:262).

Yet he also emphasized repeatedly that such "unseen" environments must be "fundamentally continuous" and interrelated with the one we know directly; "if an unseen world exists...we must in some sense be in it" (Myers, 1891e, 634). Like

a tadpole...who had learned theoretically that what he was breathing in his pond was not the water but the oxygen dissolved therein, -- and who then should...raise his head above water...[and] perceive frogs and other animals respiring the translucent air (Myers, 1903, 2:526)

scientists too, through both theoretical and empirical means, would probably continue to discover unsuspected environments, co-existing and continuous with the familiar world we perceive directly, even if also differing from it in certain respects.

Myers therefore was in a real sense motivated by the hope that a combined study of the unsuspected range of mind and the unsuspected extent of matter would begin to suggest new and unsuspected ways of understanding the relation between the two. To Myers and other early psychical researchers, it remained very much an open question whether "the physiological doctrine as regards what is styled the influence of mind on body is settled or complete" (Myers, 1881, 99) -- despite the assertions of Clifford and others to the contrary. In Myers's view, "we can in no way define the connection between our own consciousness and our organisms. Just here it is, I should say, that telepathic observations ought to supply us with some hint"; or, as he said in more general terms, they "may in time teach us something of the relation of

life to the organism" (Myers, 1903, 1:246, 2:141). The advances in the physical sciences, particularly biology and physiology, had, Myers thought, distorted our view of the mind-matter problem because, "when we see half of some body strongly illuminated, and half of it feebly illuminated, it is hard to believe that the brilliant moiety is not the larger of the two" (Myers, 1886b, xl). Yet the present skewed state of our knowledge should not obscure the remaining problem:

The central problem of the relation of the objective and the subjective sides of these psychoneural phenomena can be in no way altered by any increase of definiteness in our knowledge of the objective processes which correspond to the subjective states (Myers, 1886b, xl).

With a working philosophy of psychophysical parallelism, physical scientists and even psychologists had managed to avoid the problem. Psychical researchers did not:

The whole problem of the relation of the psychical to the physical -- of thought and will to space and matter -- is forced upon our attention with startling vividness from the very beginning of this inquiry....[D]ilemmas which the metaphysician can evade, and the physicist ignore,

the psychical researcher cannot (Myers, 1886d, 290).

Moving Beyond Controversy

One of Myers's most fundamental beliefs, in sum, was that "these deeper problems" had to be attacked empirically, even "with conscious weakness indeed, conscious inadequacy" (Myers, 1891d, 132). As important as the nature of the questions addressed, however, was the manner in which one addressed them. Another of his most fundamental beliefs, therefore, was in Mill's and Gurney's "tertium quid" approach to advancing knowledge on unresolved and controversial issues. Psychologists, he said, "have no excuse for lingering in the antiquated notion that philosophy is a kind of polygonal duel between 'systematic thinkers'" (Myers, 1891d, 133). On the other hand, the agnostics' advice "to halt and mark time" and to suspend judgment on controversial issues, although a commendably cautious and sensible approach, in

practice had not been conducive to resolving the issues. First of all, Myers noted, the agnostic rarely remains agnostic but often "harden[s] into Materialism...passes, so to say, from Huxley to Clifford" (Myers, 1900c, 116). Secondly, agnosticism often bred complacency, stagnation, or avoidance of the problems; "the passivity of pure Agnosticism...[is] too tame a surrender" (*ibid.*). Rather than simply seeking suspension of judgment while the problems were being worked on, agnostics instead usually ruled the problems out of the domain of science altogether and thus sustained the "scientific superstition" that certain questions are empirically unapproachable (Myers, 1903, 1:1). Agnostics, in other words, allowed opposing positions and views to stand and made no attempt to move beyond them: "Suspense of judgment, indeed, in matters of such moment, is so irksome an attitude of mind, that we need not wonder if confidence of view on the one side is met by a corresponding confidence on the other" (Myers, 1880/1888, 104).

Finally, agnosticism was bought only at the price of discontinuity and inconsistency of thought. As Myers noted, the prevailing temper of the times had become "not so much materialistic as agnostic," in that people attempted to maintain a belief in human responsibility and ethics in the face of a deterministic, materialistic philosophy of science. They could do so, however, only by divorcing their "emotional creed" from their "scientific creed" and establishing "a system of belief and emotions which may indeed be able to accommodate themselves to modern science, but are in no sense supported thereby" (Myers, 1886b, liv, lvi-lvii). The agnostic approach, Myers thought, had allowed contradictory views to stand, and even to be held simultaneously, because it emphasized suspension of judgment, rather than the resolution of problems.

Expanding Observations

If one were, in contrast, to attempt to resolve -- or at least advance our knowledge concerning -- disputed

issues by, as Mill said, "tak[ing] something from both sides of the great controversies, and mak[ing] out that neither extreme is right, nor wholly wrong" (Mill, 1910, 2:360), then one had to have as broad a knowledge as possible of both (or all) sides. Myers therefore repeatedly denounced the methodological parochialism of restricting one's observations to a limited range of phenomena or data and advocated instead the approach of amassing a broad range of data -- broad not just in quantity but especially in kind -- in order to prevent the premature assumption of a hypothesis, theory or view that may be, not necessarily wrong, but misleadingly narrow and incomplete. For example, he said, Carpenter's hypothesis of unconscious cerebration to explain subconscious phenomena in general, and Faraday's hypothesis of unconscious muscular action to explain table-tilting in particular, "were, so far as they went, not only legitimate, but the most logical...to explain the scanty evidence with which alone Faraday and Carpenter attempted to deal"; they were not, however, hypotheses widely applicable (Myers, 1886b, lxii). Myers also noted that Janet's observations of automatic writing had thus far been confined to hysterical patients alone, and also to relatively few of them (about 20 reported by 1889 [Myers, 1889g, 189], compared with the approximately 200 automatists Myers had observed "in less detail" by 1892 [Myers, 1892g, 470-471]). As a result, "a good many passages of M. Janet's...seem to me...lacking in width of purview," although containing "much which I hold to be true and important" (Myers, 1889g, 191).

Myers and his colleagues in the SPR also thought that the differences of opinion labelled mesmerism and hypnotism were probably the result of limited observations on both sides (Barrett, Gurney, Myers, et al., 1883a). The mesmeric hypothesis was the old one that said that the phenomena produced by Mesmer and his successors were the result of a physical force or "effluence" passing from the mesmeriser to the subject. The new hypothesis of hypnotism said that the phenomena were solely the

result of suggestion, or the subject's belief that a certain procedure or cause would bring a certain result. In Myers's view, all current theories about mesmerism or hypnotism were "narrow and misleading" because of the too narrow range of observations on which they were usually based, especially "from the confinement of attention to some few of the commoner and more obvious manifestations of hypnosis" (Myers, 1898b, 101). The Nancy view of hypnosis had prevailed over the Salpêtrière view because Bernheim, Liébeault, and their colleagues had experimented on a more varied range of subjects than had Charcot and his colleagues. Their triumph was "essentially the triumph of generalisations based on a wider experience over generalisations based on a narrower experience" (Myers, 1889g, 198). Now, however, the Nancy school was in danger of becoming trapped in its own brand of dogmatism by

insisting that all in hypnotism is suggestion....I must adhere to the view which I have often expressed....Has not the history of hypnotism thus far been a slow but repeated justification of those who, in each successive controversy, took the wider and less exclusive view? (Myers, 1889g, 198)

In appealing for a wider gathering of data and facts, he thus urged "a freer communication between opposing schools" in a joint effort to attack the problems involved (Myers, 1892c, 326).

In order to amass the range of data needed to address problems of the scope Myers wished to see addressed in psychology, a variety of methods and approaches were necessary: "The higher the generalisations to be reached, the more various probably must be the means employed for reaching them" (Barrett, Gurney, Myers, et al., 1883b, 290). What was needed, to avoid "falling prematurely under the power of suggestion of any one theory" (Myers, 1889g, 189), was "an immense and many-sided extension of definite psychological experiment" (Myers, 1891d, 133). In addition, what was needed was observation of naturally occurring, or spontaneous, phenomena from "a wide range of society, and...a variety of circumstances," to allow for the full and fair evalua-

tion of all hypotheses, including those "discordant with our own" (Myers, 1886b, lxix).

In particular, Myers urged the study of phenomena and beliefs among ancient cultures and so-called primitive peoples. One of his earliest papers was an attempt to suggest some parallels between ancient Greek oracles and divination practices and more recent phenomena such as table-tilting or automatic writing (Myers, 1880/1888). He contended that primitive beliefs and reports were not necessarily invalid superstitions simply because they were of primitive origin. There was "danger...in being too ready to take for granted that when we have explained how a belief arose we have done with it altogether; that because a tenet is of savage parentage it hardly needs formal disproof" (Myers, 1880/1888, 5). At a time when most Westerners regarded non-Westerners as "childish" savages and ancient "beliefs and tendencies as due solely to the childishness of savage man," Myers urged the potential importance of comparative ethnology and anthropology to psychology and "hoped that shamans and medicine-men will not vanish before the missionary until they have yielded some fuller lessons to the psychophysicist [that is, psychologist]" (Myers, 1886b, xlv). Although the form their practices, beliefs, and interpretations took might be "repulsive" to the modern mind, the substance behind them might be correct. It was vanity, he thought, to assume that modern "civilized" people have a monopoly on the truth; and it was "question-begging" to dismiss a belief because it is old, "when the actual problem is really whether that belief be true or no" (Myers, 1899b, 384).

Thus, instead of judging "the worth of ideas by tracing their origins," as scientists following in the footsteps of Tylor, Lubbock, and Spencer tended to do, Myers urged that we adopt

a somewhat more searching criterion. Instead of asking in what age a doctrine originated -- with the implied assumption that the more recent it is, the better -- we can now ask how far it is in accord or discord with a great mass of actual recent evidence. (Myers, 1903, 2:191)

Gurney's survey of witchcraft literature, for example, had shown that firsthand (not secondary) accounts of phenomena attributed to witchcraft bore a remarkable resemblance to modern phenomena of hypnotism and hysteria (Gurney, 1886). This example suggested that, faced with unusual or abnormal phenomena, one was not limited either, on the one hand, to accepting traditional explanations and beliefs about them in their original form or, on the other, to rejecting the observations altogether: Invalid or insufficient interpretations may have derived from perfectly valid observations. The important question to ask was "whether hypotheses, now admitted to be erroneous, had ever been based in past times on evidence in any way comparable to that which we have adduced" (Myers, 1886b, lxix).

Expanding Interpretations

Myers also, however, cautioned against, not just too narrow a range of observation, but the too rigid dismissal of hypotheses alternate to one's own, whether ancient ones or ones of more recent vintage. He defended the approach of explicitly maintaining multiple hypotheses as working possibilities, believing that this breadth of view might lead one ultimately to identify some more comprehensive or general principle that encompasses aspects of alternate hypotheses as well as all data. In introducing, for example, Phantasms of the Living, Myers contrasted his own approach to such cases with that of his co-authors, Gurney and Frank Podmore. In what might be called the "depth" approach of Gurney and Podmore, the belief was "that 'causes are not to be multiplied without necessity'," that known causes must first be pushed to their limits, and that evidence not readily fitting known causes must be "set aside as at present inexplicable" (Myers, 1886b, lxvi-lxvii). In such an approach, in Myers's view, there was the danger of prematurely limiting and fixing one's assumptions and conceptions, "in the same way as other men often refused to look beyond the limit to which the accredited sciences

had already attained" (Myers, 1886f, 156).

In Myers's "breadth" approach, in contrast, one is "careful not to overrate its [one hypothesis's] efficacy; we must be on the watch for other approaches, for hints of inter-relation between disparate and scattered phenomena" (Myers, 1886b, lxvii). He thought that the present conception of, for example, telepathy would probably turn out to be wholly inadequate and incomplete:

Telepathy, as we now know it, is probably little more than a mere preliminary conception, a simplified mode of representing to ourselves a group of phenomena which, as involving relations between minds, may probably be more complex than those which involve even the highest known forms of matter.
(Myers, 1886b, lxvii)

As a result, he thought it was "rash" to suppose that the many supernormal phenomena all result from a single cause (Myers, 1886e, 176); it was, for example, "unreasonable to treat telepathy as if it stood alone as a possible explanation" (Myers, 1890b, 318). He was "inclined provisionally to accept" the idea that there was "no single capacity of percipience, no single energy of communication," but instead multiple "causes cognate but not identical," operating "in varying proportions" and in different situations (Myers, 1886e, 176, 179).

Finally, maintaining multiple hypotheses or interpretations as working possibilities was important because this stimulated the gathering of a broader range of data or observations. With regard to hypnotism, for example, people who favored the mesmeric hypothesis usually emphasized quite different kinds of phenomena than did those people who favored the suggestion hypothesis. The opposition between the Nancy, Bordeaux, Salpêtrière, and Pitié schools of hypnotism was "necessary and advantageous" because it provided competition and stimulated researchers to extend their work in different directions (Myers, 1886e, 180n). Similarly, there were at the time two primary, but diametrically opposed, explanations of planchette writing -- the unconscious cerebration hypothesis and the Spiritualist hypothesis -- each of which emphasized quite different, but equally

important, aspects of the phenomenon. Yet "neither theory is at present capable of direct proof. They are merely of use to direct our observation to the important points in the cases" (Myers, 1884, 233).

Myers's Concept of Naturalism

In sum, because Myers, like Gurney, believed so strongly that there was often "a great deal to be said on both sides" of a controversy, he also believed that this dual approach to expanding the framework of science -- by extending the range and kind of observations and by maintaining multiple hypotheses, interpretations, or approaches to those observations -- would ultimately lead to new perspectives or conceptions that could accommodate the strengths and eliminate the weaknesses of the opposing positions. I outlined in Chapter 1 several important dichotomies of thought that scientific psychology and psychical research had renewed and even intensified. One of the most fundamental of these dichotomies -- and the one at the root of the modern conflict between science and religion -- was that between naturalism and supernaturalism. Naturalists believed there was only one world, the "orderly world of Nature" (Huxley, 1892, 3); supernaturalists believed there were two worlds, nature and a world above or beyond nature, the latter not subject to the determinism of nature. In one sense, Myers was a strict naturalist, believing in the continuity of all phenomena in one world and the invariability and universal application of natural laws. He, like most of his scientific contemporaries, accepted "the doctrine of the fixity of natural laws" and considered it "essential that the idea of unvarying law should get possession of men's minds" (Myers, 1881, 98). Thus he, again like most of his scientific contemporaries, rejected the concept of miracles, conceived as "violations of natural law" or "exceptions" to natural law "permitted by Providence," because, he said, "we know now that natural laws are never violated" and "we conceive that all phenomena alike take place in accordance with the laws of the universe"

(1881, 99; 1889f, 14).

Myers's conception of naturalism was, however, also somewhat different from that prevalent among his contemporaries. For him, belief in one continuous, orderly world did not automatically imply that the laws of matter provided the sole and fundamental foundation of that world: "Accepting as perfectly valid every law which recognised science can establish" does not preclude the supposition that there may also be "further laws, of a different kind it may be," but still "susceptible of rigorous investigation" (Barrett, Massey, Moses, et al., 1884b, 111). The modern belief that the universe is "inevitably naturalistic, cosmical, evolutionary" and never the result of "specially-authorized interferences" does not exclude the belief that there may be "a scheme of laws...of which our sciences of matter are...powerless to take account," but which new sciences, such as psychology and psychical research, might discover (Myers, 1890b, 329). Thus far, Myers said, science had formulated three basic laws or principles. The first one, underlying science as a whole, was the principle of uniformity, that "all operations in the universe obey unchanging law" (Myers, 1893b, 93). The second, underlying physics, was the principle of conservation, that "all matter and all energy known to us are indestructible" (*ibid.*). The third, underlying biology, was evolution, or the general principle that "all physical and vital operation in the universe is at present following certain obscurely discernible streams of tendency" (*ibid.*). In his view, there remained at least one additional such general principle to be discovered, "a fourth law lying at the root of psychology" (Myers, 1893b, 104). The "future of Experimental Psychology" was to discover this principle; failure to do so would leave all psychological knowledge "superficial and fragmentary" (Myers, 1892g, 535).

Myers and his colleagues in psychical research thus rejected both supernaturalism and the prevalent form of naturalism for a different, expanded concept of

scientific naturalism: "We altogether repudiate" the distinction between 'natural' and 'supernatural'" (Barrett, Massey, Moses, et al., 1883, 150). In an early (1881) essay on the French historian Renan, Myers expressed his belief that it was possible to reach an "ultimate reconciliation" in "the conflict between science and orthodoxy [religion]...which ...too often assumes [the form] of a sheer and barren contradiction"; but to do so, it was first necessary to "reject all question-begging terms -- all phrases such as 'violations of the order of Nature'" (Myers, 1881, 96). He endorsed the general belief behind St. Augustine's statement that "God does nothing against nature." No phenomena, in other words, violate the laws of nature. Nevertheless, since "our knowledge of the laws of nature is in its infancy," some phenomena may indeed go "against Nature as we know it -- in its familiar and ordinary way." Therefore, Myers urged antagonists in the controversy between naturalism and supernaturalism to move beyond the divergent and polarized positions in which their assumptions, or "prepossessions," had fixed them: "Let us not oppose law and miracle....Let us not oppose the natural and the supernatural." Such "polemical antitheses" derive from the fact that "on each side of the controversy we find a reasonable prepossession pushed too often to an unreasonable extreme" (Myers, 1881, 96-97). As a result,

resolute antagonists...cannot conceive that evidence to a world of spirit [see footnote 1] can possibly be continuous with evidence based upon our experience of a world of matter. I agree with this demand for continuity; and I agree also that claims usually advanced for a spiritual world have not only made no attempt at continuity with known fact, but have even ostentatiously thrown such continuity to the winds. The popular mind has expressly desired something startling, something outside Law and above Nature....I can hardly too often repeat that my object in these pages is of a quite opposite character" (Myers, 1903, 2:2).

As a first step toward resolving or reconciling the apparent contradiction between naturalism and supernaturalism, or even that between the scientific world view and the religious one, Myers rejected the word

"supernatural" altogether as a meaningless word and instead

ventured to coin the word "supernormal" to be applied to phenomena which are beyond what usually happens -- beyond, that is, in the sense of suggesting unknown psychical laws. It is thus formed on the analogy of abnormal. When we speak of an abnormal phenomenon we do not mean one which contravenes natural laws, but one which exhibits them in an unusual or inexplicable form. Similarly by a supernormal phenomenon, I mean, not one which overrides natural laws, for I believe no such phenomenon to exist, but one which exhibits the action of laws higher, in a psychical aspect, than are discerned in action in every-day life. By higher (either in a psychical or in a physiological sense), I mean "apparently belonging to a more advanced stage of evolution." (Myers, 1885b, 30n)

Beyond Credulity and Incredulity

Closely related to this rejection of the old natural/supernatural dichotomy was Myers's conviction that both modern scientific thought and traditional popular thought had failed utterly to provide an adequate account of the questions, phenomena, and experiences with which the psychical researchers were attempting to deal. Reports, for example, of so-called mind cures or of stigmatization were greeted either with "blank incredulity" or with "miraculous pretentions" (Myers & Myers, 1893, 202) and "treated...as though [they] must be either fraudulent or miraculous -- ou supercherie, ou miracle" (Myers, 1903, 1:188). Furthermore, Myers noted, this failure was circular and self-perpetuating, since superstition about a phenomenon grows in direct proportion to scientists' tabooing of it: "Loose assertion" on the part of the public "has been met with contemptuous neglect" on the part of scientists (Myers, 1885b, 62); but conversely,

no attempt to discourage inquiry into any given subject which strongly interests mankind, will in reality divert attention from the topic thus tabooed....The subject will be pursued with the more excited eagerness because regulating knowledge and experienced guidance are withdrawn....Where savants have minimised, they [the public] have magnified, and the perplexing modes of marvel which the textbooks ignore, have become, as it were, the gan-

glia from which all kinds of strange opinions ramify and spread. (Myers, 1886b, lviii)

As had happened in the case of the phenomena associated with modern Spiritualism, "a swarm of follies and credulities must inevitably perch and settle" when intellectual leaders -- both religious and scientific -- fail to provide anything but "superficial" and "emotional" explanations (Myers, 1900c, 124; 1889f, 63):

Let those who mock at the weaknesses of "modern Spiritualism" ask themselves to what extent either orthodox religion or official science has been at pains to guard the popular mind against losing balance upon contact with new facts....[R]idicule is no remedy. The remedy lies...in inculcating the intellectual virtues. (Myers, 1900b, 124)

Myers and other psychical researchers attempted to fill this gap. They understood all too well "the mischief which is being done to the minds of men and women" by the uncritical acceptance of certain phenomena at face value; but they also understood that "it is useless to scoff or to sermonise, you must understand and explain" (Myers, 1885b, 33). In particular, they hoped to provide the "regulating knowledge and experienced guidance" by seeking some middle course between denying the reality of people's reported experiences and accepting the "strange opinions" that they had spawned: "Is there not some middle term, some intermediate series, with which both these extreme series may have points of resemblance?" (Myers, 1903, 2:506). Psychical research was intended to attract those who were not satisfied with either credulity or incredulity: "Between the scornfully sceptical and the eagerly superstitious we have virtually had to create a public of our own" (Myers, 1894-1895, 190).

Unfortunately, that public proved to be a relatively small one. The old, clearcut dichotomies, in which one position was assumed to be true and the other false, were far more strongly entrenched in people's minds than the notion that limited knowledge and perspectives may have resulted in a mixture of truth and falsehood on both sides. Consequently, the psychical researchers found themselves faced with contradictory criticisms, some

people saying they were overly credulous, others saying they were overly skeptical (Gurney & Myers, 1887, 7-8). They were constantly, in other words, confronted with "the difficulty of getting heard when one proposes a 'third position,' that is, an original one, other than the familiar pair of pro and con" (Barzun, 1983, 176).

These, then, were the general purposes and principles on which Myers (and many of his colleagues) attempted to build psychical research: first, to maintain a belief in the ultimate rationality and continuity of all phenomena, mental as well as physical; and second, to attempt to forge a new perspective on old problems concerning the nature of mind by extending one's range of observation and data beyond ordinary, familiar phenomena and by broadening one's concepts through continually examining assumptions, hypotheses, and views contrary to one's own. On the basis of this "tertium quid" approach, rooted in Mill's epistemology, Myers went on to make what I consider to be two major contributions to psychology. In the first place, he proposed a theoretical model of mind that was an important attempt to move beyond the two predominant, but diametrically opposed, views of mind and to develop a new, more comprehensive view. Secondly, he suggested that the mind-matter problem could be approached empirically by studying abnormal psychology, not from a medical perspective in which therapeutic advances were the goal, but from a psychological and evolutionary perspective in which theoretical advances were the goal; and he outlined numerous lines of research that might contribute to such a study. In the following chapter, I will describe Myers's model of mind, and in Chapter 7 I will discuss some of the kinds of research that he believed must be conducted and considered when evaluating his or any other theory of mind.

CHAPTER 5
ENDNOTES

¹ I remind readers of note 3 in Chapter 1, in which I said that, despite their different connotations in modern usage, the words "spirit" and "mind" refer to the same general aspects of human experience. Thus, whenever Myers used the word "spirit" or its derivatives, we need to resist our automatic reaction which invests this word with our usual assumptions about or associations with it. In using this word, he was referring to the mental, psychical, psychological aspects of experience; but he probably used it rather than, say, "psychological" in order to avoid the assumption -- becoming so prevalent in 19th-century psychology -- that the phenomena so designated are solely aspects of cerebral processes. He acknowledged (1892c, 305) that "spirit" was an unsatisfactory word to use, because of its usual theological implications, and he suggested the word "metetherial" as a possible substitute (Myers, 1898/1909, 212). Lacking any really satisfactory substitute, however, he did continue to use the more common word (Myers, 1895a, 23); but in using either "spiritual" or "metetherial" he did not mean to assert the old theological, dualistic idea of a discontinuous, supernatural realm. He meant only to express his conviction that not all phenomena are in essence material and that mind or mental efficacy is as fundamental and primary an aspect or characteristic of nature as matter.

² The word "telepathy" did not come into use until 1882, when Myers introduced it in a paper read to the SPR (Barrett, Massey, Moses, Podmore, Gurney, & Myers, 1883, 147; Myers, 1896a, 174). Before this, the terms "thought-reading" or "thought-transference" had been used to refer to the phenomenon of one person apparently deriving information directly from another person's mind.

³ Myers wrote about the damaging effect that he thought the erosion of ideals in the late 19th century was already having, both on individuals and on society at large, and he argued that, if this loss of ideals continued, it would be a major cause of a general decline in Western civilization (1888b). In the last paper he published before his death (1900a), he again referred openly to this theme that the real motivating force behind human activity is an ideal goal. He quoted Henry Sidgwick as having said, in "almost his last words to me," that "we must idealise, or we should cease to struggle" (262). Similarly, he quoted Tennyson (like Sidgwick, a person who was a major influence on Myers's thinking) to illustrate his belief that, even if ideals are, by definition, unattainable -- even if basic questions are unanswerable -- they are our guiding poles: "But blind or lame or sick or sound,/ We follow that which flies before" -- even though "We know the merry world is round,/ And we may sail for evermore" (261; quoting Tennyson's The Voyage, "that allegory of the lifelong quest of an Ideal").

⁴ By "psychosis" and "neurosis" Myers meant here "mind" and "brain" -- that is, psychological events and neurological events -- a usage common in the 19th century and not implying kinds of mental illness.

CHAPTER 6
STRUCTURE AND DYNAMICS: A NEW MODEL OF MIND

Theory in Science

It is clearly a chicken-and-egg question to ask whether the scientific process begins with theory or with observation. Theories cannot usefully be constructed without the material of empirical observations; but -- as with any perceptual process -- observation does not occur without a phenomenon being filtered through the prism of some conceptual construct: "The observation of any concrete empirical event is carried out under the dictates of some 'theory' -- that is, certain things are attended to and certain things are overlooked" (Hall & Lindzey, 1957, 17). Theories are general organizing principles that both systematize a wide range of known fact and predict an equally wide range of new data. A theory must, first of all, provide for "the incorporation of known empirical findings within a logically consistent and reasonably simple framework. A theory is a means of organizing and integrating all that is known concerning a related set of events" (Hall & Lindzey, 1957, 13-14). Perhaps more importantly, however, a theory must also stimulate "the collection or observation of relevant empirical relations not yet observed. The theory should lead to a systematic expansion of knowledge concerning the phenomena of interest...by the derivation from the theory of specific empirical propositions" (Hall & Lindzey, 1957, 13). The growth of scientific knowledge is thus a continual interplay of observations that spawn organizing ideas, that in turn stimulate new observations, that in turn modify old generalizations -- and so on, indefinitely.

Perhaps the most important contribution that Myers hoped, and attempted, to make to the newly emerging science of psychology was to provide it with a general theoretical foundation that could serve, as all theories must, both as a point of orientation and as a point of departure. As I have explained in earlier chapters, he

did this first of all by trying to recall psychologists to the basic theoretical question of psychology: the nature of mind and its relation to matter. He went much further than this, however, as I will try to show in this and the next chapter, and developed a new model of mind that both systematized a wide range of psychophysiological phenomena and suggested novel empirical means for broadening the base of observations relevant to psychology's main question.

As in any science, the phenomena of psychology can be approached either from a structural perspective or from a dynamic perspective. In other words, psychologists may take a descriptive approach -- describing the phenomenological relationship between various events or facts; or they may take an explanatory approach -- describing the causal relationship between the various phenomena (Deese, 1972). A general theoretical approach, however, must be both structural and dynamic: It must organize phenomena in a coherent descriptive framework, and it must provide an explanatory framework that can predict and accommodate new phenomena. Myers's model of mind was both structural and dynamic. On the one hand, in what might be called his "spectrum" model of mind, he described the phenomenological or structural relationship between all psychological processes, conscious and subconscious. On the other hand, in a dynamic "filter" model of mind similar to those of Schiller (1891/1894), James (1890, 1898/1900), and Bergson (1913), Myers described this phenomenological spectrum as the result of evolutionarily adaptive processes that limited and shaped consciousness rather than produced it.

A Structural Model of Mind

Myers began by attempting to overcome the fundamental theoretical impasse that separated the new psychology from the old psychology. As in physics -- which throughout its history had seen the recurrent waxing and waning of, now, the particle theory of light and, then, the wave theory -- psychological theorizing had remained

polarized between, in essence, a particle theory of mind and a wave theory. The "wave," or unity, theory of mind was associated with the old, dualistic psychology and is the commonsense one, held by most people on the basis of their own subjective experience, that the mind or self is an abiding, autonomous, indivisible, free, and conscious causal agent. Myers quoted from the 18th-century philosopher Thomas Reid to describe this position:

The conviction which every man has of his identity...needs no aid of philosophy to strengthen it; and no philosophy can weaken it....I am not thought, I am not action, I am not feelings; I am something that thinks, and acts, and suffers. My thoughts and actions and feelings change every moment...; but that self or I, to which they belong, is permanent.... [A] person is a monad, and is not divisible into parts. (1885d, 639; 1903, 1:10)

The "particle," or multiplicity, view, in contrast, was associated with the new physiological psychology and conceived of mind, or the self, as an aggregate of psychological elements. The mind was a product of physical and evolutionary processes, its conscious portion was only a part of it, and its perceived unity was derived entirely from the evolved coordination of the parts of the bodily organism. Ribot provided Myers with his description of this view:

It is the organism...which constitutes the real personality....The conscious personality is never more than a small fraction of the psychical personality. The unity of the Ego is not therefore the unity of a single entity diffusing itself among multiple phenomena; it is the co-ordination of a certain number of states perpetually renascent, and having for their sole common basis the vague feeling of our body. This unity does not diffuse itself downwards, but is aggregated by ascent from below...; the Self is a co-ordination. (1903, 1:10, translated and quoted by Myers from Ribot; see Ribot, 1898, 154-155)

The two views were completely opposite in nature and apparently "hopelessly incompatible"; and yet each of them was supported by experience -- "the one by our inmost consciousness," or personal experience, and "the other by [the] unanswerable observation and inference" of scientific analysis (1903, 1:11). In keeping with his tertium quid approach to such intractable and paradoxical

problems, Myers believed that in fact "the reconciliation of the two opposing systems in a profounder synthesis" was possible and that the controversy would be resolved with "a judgment more decisively in favour of both parties than either could have expected" (1903, 1:11). Neither view was wrong; they were both simply incomplete. Myers "unreservedly conceded" to those who held the psychophysiological "particle" view that mind, or human personality, is not what we generally take it to be (1903, 1:11; 1885d, 638) and that "the old-fashioned conception of human personality as a unitary consciousness known with practical completeness to the waking self need[s] complete revision" (1903, 2:81). The rapidly multiplying observations of experimental psychology, neurology, psychopathology, and hypnotism clearly showed that higher mental processes had evolved from lower ones; that the human mind is far more extensive than ordinarily thought, since much of our psychological functioning remains outside the range of our conscious mental life; and that under certain conditions, consciousness could fragment into multiple parts.

Nevertheless, Myers also believed that even though the observations were correct, the theoretical conclusion drawn from them -- that human personality is therefore a product of multiple elements -- may be a premature and superficial conclusion. He believed that psychologists had not yet carried the analysis of human personality far enough or deep enough, and that, when they did, that analysis would, paradoxically, reveal an underlying continuity or unity of human personality out of which were continually being filtered only those elements most useful and adaptive to everyday life: "There exists a more comprehensive consciousness, a profounder faculty, which for the most part remains potential only..., but from which the consciousness and faculty of earth-life are mere selections" (1903, 1:12).

Myers's model of mind derived, by analogy, directly from Hughlings Jackson's hierarchical model of nervous system functioning, which in turn had derived from Spen-

cer's ideas about the evolution and dissolution of complex systems (Jackson, 1884). Jackson described the nervous system as a hierarchy of three general levels, ranging from the oldest and most basic biochemical processes, to the mid-level sensorimotor processes, to the most recently evolved cerebral centers with which the higher mental processes are associated. Evolution occurs as the older processes, by repeated functioning, become more organized, automatic, unconscious, and stable. Receding, as it were, from center stage and into the background of consciousness, these processes nevertheless continue to function automatically, providing the basis upon which higher and more complex processes develop. These higher processes, being newer, are thus less organized, less automatic, less stable, and more conscious, requiring, because of their relative unfamiliarity, more attention from the organism. When injury or disease strikes the nervous system, the higher processes -- being less stable -- are the first to be affected and impaired, and when the higher processes can no longer function, lower functions re-emerge from the background and take over the primary, overt functioning of the organism. According to Jackson, therefore, dissolution of the nervous system occurs in the exact reverse order as its original evolution occurred, and the symptoms of insanity are simply whatever lower-level nervous system processes remain functional when higher-level ones have been impaired (Jackson, 1884, 591).

This model of a hierarchical system that is in a constant state of change -- or evolution and dissolution -- in response to the demands of the organism's environment became the model for Myers's conception of mind, or human personality.¹ Just as Jackson had applied a hierarchical, evolutionary model to the nervous system and its corresponding psychophysiological phenomena and had thus "clear[ed] up much previous confusion of thought," so, Myers thought, one could apply a similar hierarchical, evolutionary model to clear up the present confusion about the unity versus the multiplicity of mind, brought

on by the new recognition that the extent of mind exceeded our conscious awareness (1903, 1:72-73).² The confusion had arisen, in large part, because "mind" had long been equated with "consciousness," that is, with what one was aware, cognizant, or sensible of. Thus, for many in the 19th century, the term "unconscious mind" was a contradiction in terms. This belief gave rise to such interpretations of unconscious phenomena as Carpenter's hypothesis of unconscious cerebration, which said that all unconscious processes are simply physiological reflexes. Other people, however, pointed out that many unconscious or subconscious processes displayed characteristics that we ordinarily attribute to conscious beings, such as memory, volition, and creativity. Myers himself, for example, argued that

I wish to protest against the undue extension of such phrases as 'unconscious cerebration,' and to insist that we have as good ground for attributing consciousness to some at least of these subliminal operations in ourselves as we have for attributing consciousness to the intellectual performances of our neighbors. (1892d, 327)

Thus, unless one were willing to insist that all conscious mental processes are also simply physiological reflexes, this unconscious cerebration hypothesis seemed clearly inadequate.

Many psychologists were thus led to propose instead that the unconscious or subconscious was an alternate, or second, personality, with a separate memory chain, focus of consciousness, and thus self-identity comparable in kind (if not degree) to the original personality (see, e.g., Binet, 1890, 1891/1896; Sidis, 1898/1906, 1912; Sidis & Goodhart, 1905). This conception, however, inevitably led to such problems as who or what these personalities were, how many of them there could be, and how one ethically decides which was the "real" personality and which would be eliminated as intruders -- a problem that became particularly poignant for Morton Prince when he was faced with the godlike task of banishing Sally from Christine Beauchamp's new merged personality (Prince, 1905/1930).

Instead of defining mind or consciousness as the content of our awareness -- which, obviously, changes every moment -- Myers defined it by the criterion of memorability. This criterion was not the same as that of those philosophers, such as Locke and Hume, who argue that self-identity or personality can be defined by the criterion of continuity of memory. Myers was fully aware of the inadequacy of proposing a continuous or persisting memory chain as a criterion for self-identity. Not only the phenomena of abnormal psychology, but also the daily phenomenon of sleep called this definition into question: "Experimental psychology [is] upsetting the old metaphysical view...that the persistence of the one thread of memory...is a proof of the true personality.... [M]emory, as we know it, cannot prove the personality of man" (1885d, 648, 651). Instead, for Myers, "conscious means memorable": It is not only what is actually in memory at any given time -- that is, what is within supraliminal waking consciousness or capable of being brought within it by supraliminal, waking effort. It is, more fundamentally, what may potentially be brought within supraliminal waking consciousness -- that is, what is "capable of reappearing in the field of memory if a favourable occasion recurs" (1885c, 129; see also 1891d, 117):

When we conceive any act other than our own as a conscious act, we do so either because we regard it as complex, and therefore purposive, or because we perceive that it has been remembered....The memorability of an act is, in fact, a better proof of consciousness than its complexity....I cannot see how we can phrase our definition more simply than by saying that any act or condition must be regarded as conscious if it is potentially memorable; -- if it can be recollected, under any circumstances, by the subject concerned. (1903, 1:36-37)

Broadly speaking, then, anything that enters into one's range of experience becomes part of one's consciousness and, in principle, capable of entering into one's waking consciousness or awareness, given the appropriate condition or the discovery of an "appropriate artifice" or experimental method to do this (1891d, 115).

For Myers, therefore, the definition of mind did not involve the problematic task of defining what was in or out of one's waking awareness. Furthermore, for him the problem of the nature of mind was not the straightforward one of whether mind should be considered unitary, double, or multiple. When, for example, Dessoir raised (in his book Das Doppel-Ich) the problem of whether consciousness should be considered duplex or multiplex, Myers replied that psychologists must "probe the matter still deeper," since the problem was "far more complex than a mere fission into two [or more] personalities" (1889h, 211). Similarly, the structure of human personality was more complex than a simple division -- at some boundary or threshold of sensation, perception, or memory -- into consciousness and unconsciousness (1885a, 234). In his view, there is "no persistent plane of cleavage" or "mere counting of heads (to use a somewhat inappropriate metaphor)," but there is instead a complex, fluctuating, but continuous "gradation" of consciousness (1889h, 211).

Myers thought that our conception of mind would have to be altered along lines similar to the changes modern science had brought to our understanding of light. Thus, he suggested that the individual self or personality could be thought of as a ray of light which, when filtered through a physical object or prism, becomes visible as a continuum, or spectrum, of colors extending indefinitely in either direction. Our ordinary waking consciousness corresponds only to that small segment of the solar spectrum that is visible to the naked eye (and that varies from species to species); but just as the solar spectrum continues indefinitely in either direction beyond the small visible portion, so human consciousness might extend indefinitely in either direction beyond the small portion of which we are normally aware. And, just as the physical sciences have developed artificial means of extending our sensory perception far beyond its ordinary limits into the infrared and ultraviolet regions, so the task of the psychological sciences is to expand our perception and understanding of human con-

consciousness beyond its ordinary limits. As Myers expressed it, "optical analysis splits up the white ray into the various coloured rays which compose it":

The sunbeam..., when fanned out into a spectrum, is barred with belts and lines of varying darkness; ...[and] where at either end the spectrum fades out into what for us is blackness, there stretches onwards in reality an undiscovered illimitable ray....Even thus, I venture to affirm, beyond each end of our conscious spectrum extends a range of faculty and perception, exceeding the known range, but as yet indistinctly guessed. The artifices of the modern physicist have extended far in each direction the visible spectrum known to Newton. It is for the modern psychologist to discover artifices which may extend in each direction the conscious spectrum as known to Plato or to Kant. (1903, 1:17-18)

To try to make his conception of mind clearer, Myers also varied the metaphor to compare consciousness to heat, such that

our supraliminal [ordinary waking] consciousness or memory resembles the range of temperature covered by our ordinary thermometers. The thermometer's range represents but a small segment of the temperatures whose existence in the Cosmos is implicit by the very nature and constitution of the planet on whose surface our short range of temperatures prevails. Even so our supraliminal consciousness, with its ~~demonstration based upon demonstration~~ ^{implicit} consciousness of wider scope. That wider consciousness, again, may conceivably extend from the absolute zero, or point -- wherever that may be -- where no consciousness has yet begun, up to a point of expansion where it may transcend any analogy which we can employ. For just as we know of no superior limit to heat, unless it be that point where, in consequence of the complete dissociation of matter, the energy which we call heat must change its character in some unknown way, so also we know of no superior limit to consciousness, unless it be at that point where individual consciousness, individual memories, may be merged in some vaster and unknown form of life. (1892c, 306-307)

In short, mind was not to be equated with that relatively small fragment of it that we know as our waking awareness, perception, or memory. The particular portion of the psychological spectrum that comprises our waking self has been, as it were, filtered out from the whole:

The matters of which we are superficially conscious have been selected from among the matters of which

we might have been conscious, much as the matters to which we attend are selected from among the matters to which we might attend. (1892c, 307)

The waking self is thus "a restricted personality," or "a segment of our being"; and "our being" is that "wider personality subjacent but habitually unreachable" (1885b, 234; 1893d, 20). Consciousness, by his definition therefore, was not limited to the "restricted" waking consciousness, but was the entire spectrum, including all "psychical action...included in an actual or potential memory below the threshold of our habitual consciousness." The "supraliminal" consciousness referred to the ordinary waking portion; the "subliminal" consciousness referred to all that lay outside the waking portion (1892c, 305).

Myers was thus quite explicit in his terminology: By individuality, or Self, he meant to refer to the entire spectrum; by personality, or self, he meant the small segment of it that we habitually perceive or are aware of. The individuality or Self is "the underlying psychical unity," or "our persistent being...an irreducible Ego...[that] finds at different moments very different channels or capacities of self-manifestation" (1892c, 305; 1889d, 60, 63). The personality or self, in contrast, is one of those "different channels or capacities of self-manifestation" (of which, as I will explain further below, there may be more than one within one Self). It is "more external and transitory....[It is] any chain of memory sufficiently continuous, and embracing sufficient particulars, to acquire what is popularly called a 'character' of its own" (1892c, 305).³

An Evolutionary Model of Mind

Myers went on to suggest that the same mechanism carved out the waking, or supraliminal, portion of the psychological spectrum in a species or an individual as had determined the visible portion of the solar spectrum: natural selection in response to the demands of the organism's environment. Out of the potential sensory or psychological processes latent in consciousness, only

those most useful for survival have thus far developed:

My waking consciousness may embrace only such part of my whole range of faculties as it has been useful for my ancestors to keep under immediate control in their struggle for terrene existence....[T]he range of perception which rises above the threshold -- the spectrum, as I call it, of my supraliminal consciousness -- may merely have been determined by natural selection. (1894-1895, 197)

The waking self was not the only possible self that could have developed out of the entire, latent Self; nor, as Myers frequently emphasized, was it psychologically superior to or more important than the rest of the spectrum of consciousness:

I hold that we each of us contain the potentialities of many different arrangements of the elements of our personality....The arrangement with which we habitually identify ourselves, -- what we call the normal or primary self, -- consists, in my view, of elements selected for us in the struggle for existence with special reference to the maintenance of ordinary physical needs, and is not necessarily superior in any other respect to the latent personalities which lie alongside it,-- the fresh combinations of our personal elements which may be evoked, by accident or design, in a variety to which we can at present assign no limit. (1888c, 387)

Nor, he said elsewhere, do we have any reason to assume that our waking consciousness "does really cover the most important part of the psychical operations which are going on within us" (1887b, 258-259). Myers agreed with Hughlings Jackson, who, when discussing the evolution and dissolution of the nervous system, had insisted that manifesting states are the "'fittest,' not 'best,'....[T]he evolutionist has nothing to do with good or bad" (Jackson, 1884, 591).

Myers's model of the evolution of mind closely paralleled certain ideas of Spencer and von Baer, from whom Jackson had derived his model of the evolution and dissolution of the nervous system. Von Baer (1792-1876) had written about "the law of development" of an individual organism from a homogeneous embryo to a heterogeneous and increasingly complex organism. Spencer had applied von Baer's law, Coleridge's similar idea of a "tendency to individuation," and associationist principles (Young,

1968, 1970) to develop his general principle that the universe -- like the embryo -- began as a simple homogeneity, or formless unity, which then began to divide and differentiate into parts, which in turn integrated to form new units that became increasingly complex in the ongoing process of adapting to their environment. Jackson had in turn applied these general ideas about the evolutionary differentiation and increasing complexity of systems to physiology and the nervous system in particular (Young, 1968, 1970).

An important aspect of Myers's ideas about the evolution of mind or consciousness was that, just as the forms of all living organisms were somehow inherent in the original homogeneity, or "primal germ," from which all life had developed, similarly all forms of consciousness were inherent in the homogeneous primal germ from which mind had developed. All life

starts from an X of some sort; and for my present argument it matters not whether you call X a carbon-atom or an immortal soul. Whatever it was, X had certain propensities, which must have dated in any case from some age anterior to its existence upon our recent planet...[and] on which earth's forces began their play. (1892c, 318)

Thus, Myers suggested, there had been a "primitive simple irritability" (1903, 1:95), or "undifferentiated sensory capacity of the supposed primal germ" (1896a, 167), which Myers called panaesthesia. Out of this homogeneous or undifferentiated sensibility had developed the particular senses we now have. For example, the evolutionary process had eventually reached "a point...where vision differentiate[d] itself from various indefinite forms of perception...with the growing sensibility of the pigment-spot to light and shadow" (1903, 1:224). Similarly, other senses had evolved out of some pre-existing latent potential, and other forms of perception, he suggested, may yet be emerging and evolving:

Whatever be the part which we assign to external influences in its evolution, the fact remains that the germ possessed the power of responding in an indefinite number of ways to an indefinite number of stimuli. It was only the accident of its exposure to certain stimuli and not to others which has made

it what it now is. And having shown itself so far modifiable as to acquire these highly specialised senses which I possess, it is doubtless still modifiable in directions as unthinkable to me as my eyesight would have been unthinkable to the oyster. (1889g, 190)

Human beings are now the highest point on the evolutionary scale, since "they have evoked in greatest multiplicity the unnumbered faculties latent in the irritability of a speck of slime" (1903, 1:76). Nevertheless, it does not thereby follow that our present sensory capacities and our normal waking consciousness mark the final point of the evolutionary process: "To anyone...who takes a broad view of human development, it must seem a very improbable thing that that development should at this particular moment have reached its final term" (1903, 1:186). Just as in the individual spectrum of potential consciousness some perceptions and capacities have become supraliminal, so in the evolutionary spectrum of potential consciousness, some faculties have been evoked and some remain latent or potential only (1903, 1:119). But there is "no apparent reason why these latent powers should not from time to time receive sufficient stimulus" to appear sporadically, and even ultimately to develop more fully (1903, 1:186).

Myers believed that there were many kinds of phenomena demonstrating that the differentiation of sensory and perceptual capacities out of the original undifferentiated panaesthesia was an incomplete and ongoing evolutionary process. For example, in the phenomenon known as synaesthesia, two sensory capacities seemed to be linked in unaccustomed ways, resulting in "comitance of sense-impression" (1903, 1:224). Thus, in so-called "coloured audition" or "sound-seeing," the sensation of a particular sound will inevitably be accompanied by the sensation of a particular color. Myers suggested that synaesthesia was "a kind of vestige of that undifferentiated continuous sensitivity from which we suppose our existing senses to have been specialised in the struggle for life" (1892g, 529). Similarly, phenomena considered examples of hyper-

aesthesia, or "unusually keen sensation" (1896a, 167), may suggest the development of increasing sensitivity in known senses; or they may also suggest the emergence of new sensory or perceptual capacities, "as yet incipient and unrecognised, ... a wider selection from the potential panaesthesia of the primal germ" (1895i, 410). In short, perceptual capacity, like consciousness in general, is a spectrum or continuum in which the boundaries between particular senses are not rigidly fixed, and likewise in which the boundary between what is a latent or potential capacity and what is an emergent or known capacity is continually evolving and changing. As a result of this fluidity of boundary, perceptual capacities -- new and old -- may occasionally be more closely linked together than usual or may occasionally become unusually acute.

In Myers's view, therefore, if psychologists wished to gain a wider theoretical perspective on the nature of mind, they should be concerned not just with what human consciousness has evolved out of, but also with what it might be evolving into: "It must be on the future as much as on the past, on what is now in process of evolution as much as on what has already been evolved, that the attention of the psychologist should be fixed" (1903, 1:97-98). The process of evolution involved not simply the adaptation of an organism to its environment, but also the widening perception of that environment, the "gradual discovery of an environment, always there, but unknown" (1903, 1:95). On both the individual and the evolutionary level, organisms were continually evolving from being "unconscious of all the stimuli to which [they] had not yet learnt to respond," to becoming increasingly aware of aspects of their environment that had existed all along, but unperceived and unsuspected by them (1903, 1:95). During the course of development or evolution, in other words, the supraliminal portion of the spectrum of consciousness has been gradually expanding into (as it were) new territories, indicating that not only is that spectrum far more extended than it superficially -- that is, supraliminally -- appears to be

at any given point in time, but also that the environment around it is more extended. Since life and consciousness are still, presumably, evolving, "it should be...the business of the psychologist to look out for extensions of capacity -- to recognise evolution" (1892c, 315). Such an approach, Myers believed, would not only broaden our perspective on the nature and extent of mind, but would also broaden our perspective on the nature and extent of that environment in which mind exists. Myers himself believed that that broadened perspective would indicate that "Thought and Consciousness are not, as the materialists hold them, a mere epiphenomenon,...but, on the other hand, are, and always have been, the central subject of the evolutionary process itself" (1891e, 642). In any case, "to those who will say that all this is a mere fantasy played on the great theme of Evolution, I would suggest that the theory of Evolution can never be -- I do not say complete -- but even coherent, until it can say some plausible word on Life, Consciousness, Thought" (1891e, 643).

Another aspect of Jackson's model of nervous system functioning that was paralleled in Myers's model of mind was the nature of automatisms. Jackson (1884) had proposed that the older and more habitual a process became, the more stable, unconscious, and automatic its execution became, leaving the organism free to develop more advanced and complex processes. Similarly, Myers suggested that older psychophysiological processes became more stable and automatic. There is, he pointed out, an evolutionary advantage to "relegating voluntary ends to automatic execution." First of all, learned, stable, automatic processes get "the needed thing done...with a verve and a completeness which conscious effort finds it hard to rival" (1900c, 415). But they also allow newer and more complex latent processes to emerge as the organism's conscious, supraliminal attention is withdrawn from the older, more primitive processes and focused instead on the unfamiliar and thus relatively unstable developing processes.

The Spectrum Model

Myers again resorted to his analogy or model of the solar spectrum to illustrate in more detail the structure and dynamics of evolving mind. The distinction between subliminal and supraliminal aspects of consciousness in Myers's model is not as simple as a dichotomy between conscious and not conscious, or between weak and strong sensations separated by some boundary or threshold of awareness. To fully delineate the range of subliminal functioning, Myers found it necessary to depict the subliminal as falling below, above, and even within the supraliminal -- just as the portions of the solar spectrum invisible to the unaided human eye fall below (in the infrared direction), above (in the ultraviolet direction), and within the visible portion (in the dark bands interspersed throughout the visible range).⁴ He therefore urged his readers to think of ordinary waking consciousness, not as a pinnacle, but as a fragment of consciousness:

There seems no reason to assume that our active consciousness is necessarily superior to the consciousness [or processes] which are at present secondary, or potential only. We may rather hold that super-conscious may be quite as legitimate a term as sub-conscious, and instead of regarding our consciousness (as is commonly done) as a threshold in our being, above which ideas and sensations must rise if we wish to cognize them, we may prefer to regard it as a segment of our being, into which ideas and sensations may enter either from below or from above. (1885a, 234)

The entire consciousness, or Self, of an individual therefore consists not only of the waking, or "visible," segment, but also of three basic kinds of subliminal, or "invisible," psychological processes. First, some subliminal processes fall into the "infrared" portion of the spectrum of consciousness. In Myers's Jacksonian-type hierarchy, the infrared region contained the older, more primitive processes -- information or behavior that, he suggested, had once been conscious (either at the individual or at the evolutionary level), but was now unconscious, automatic, and primarily physiological. Thus,

"at the red end (so to say) consciousness disappears among the organic processes" (1894-1895, 197). As I will describe in more detail below, sleep and its associated psychophysiological processes are an important aspect of "infrared" functioning. Furthermore, in certain other situations, such as those altered states of consciousness in which suggestion or self-suggestion becomes somehow effective, the individual may exhibit "increased powers over organic processes," as in cases of stigmata or "faith healing" (1894-1895, 197). Myers suggested that in such altered states of consciousness, the individual's normal waking consciousness has somehow been suppressed and "infrared" subliminal processes have been activated. As a result, certain automatic or organic processes relegated (by evolution or habit) to the infrared areas of functioning may once again come under a kind of volitional (although not supraliminal) control.⁵

Secondly, there are subliminal processes that fall within the supraliminal segment of the spectrum, corresponding to (in the analogy of the solar spectrum) the dark bands interspersed throughout the visible range of colors. These "dark bands" are mental processes that are comparable in kind to supraliminal ones but that are nonetheless outside waking consciousness. They are "mental [operations]...which are on much the same level as the operations to which our minds attend, but which for various reasons remain in the background" (1886d, 285), such as sensations that we have subconsciously perceived with our normal senses, but have never been consciously aware of. As with the infrared subliminal processes, these "dark-band" subliminal processes may also, under certain conditions or in certain individuals, become activated such that they emerge from their ordinarily latent state. Hypnotized subjects, for example, may show hypermnesia (or a keener than usual memory) or hyperacuity of the normal senses; idiots savants may show an unusually elevated level of calculating ability; children (or others) with eidetic imagery display an unusually vivid sense of imagery.

Finally, in the "ultraviolet" end of the spectrum are all those mental capacities that remain latent because they have not yet been elicited, at a supraliminal level of consciousness, by the adaptive evolutionary process. It is the subliminal phenomena on this end of the spectrum that, Myers believed, could suggest where consciousness might be headed, not just where it had come from. In the "ultraviolet" region, therefore, were those new modes of perception that seemed -- rarely, fitfully, and briefly -- to emerge. They are the "super-conscious operations" that are "not below the threshold -- but rather above the upper horizon of consciousness" (1886d, 285), the supernormal phenomena that "indicate a higher evolutionary level... [that] is above the norm of man rather than outside his nature" (1896a, 174; see also 1885b, 30n). Such supernormal operations included telepathy, "the communication of impressions of any kind from one mind to another, independently of the recognised channels of sense" (1896a, 174); clairvoyance (or, as Myers preferred to call it, telaesthesia), "perception at a distance...independently of the recognised channels of sense" but also independently of any other mind (1896a, 174); precognition, or knowledge of the future "beyond the scope of our ordinary inference" (1895h, 338); retrocognition, or knowledge of the past "beyond our ordinary memory" (1895h, 338); and telekinesis (now usually called psychokinesis), or the movement of objects beyond the range of ordinary muscular or other physical forces (1896a, 174). All of these "ultraviolet" phenomena suggested, in essence, newly emerging modes of perception or other interaction of mind or consciousness with its environment. Telepathy and telaesthesia implied a new and different kind of relationship with space; precognition and retrocognition implied a new relationship with time; and telekinesis implied an extended kind of interaction with matter.⁶

Although Myers himself had introduced some of this terminology -- for example, "telepathy" and "telaesthesia" (Barrett, Massey, Moses, et al., 1883,

147) and "retrocognition" (1896a, 173) -- he was careful to warn that the categories of phenomena were probably not as precisely delineated as the precise terminology might suggest. The terms may help to arrange and clarify phenomena temporarily, but because these supernormal operations had barely begun to emerge and differentiate themselves from the homogeneous panaesthesia, whether they would actually differentiate and develop in the categories we have presently constructed remained very much an open question:

I am far from assuming that these terms correspond with definite and clearly separated groups of phenomena, or comprise the field of supernormal faculty....[T]here is no one logical order in which to arrange these supernormal phenomena. They do not spring one from another in traceable sequence; rather they are emergent and scattered manifestations of some deeper and more comprehensive law. The distinction suggested...between telepathy and telaesthesia... cannot be made fundamental. (1903, 1:136)

Just as there is synaesthesia, or linked and undifferentiated sensation between two or more known sensory capacities, there may be synaesthesia among new, or supernormal, modes of perception: "The assumed new sensitivities...may be linked together in ways quite unknown to us" (1895i, 410). Thus, for example, in an apparently simple case in which, by automatic writing, one person had located another person's lost book, Myers pointed out the difficulty of specifying an exact explanation for the event: Was it retrocognitive awareness of the book being misplaced in the past? telepathy from the subliminal consciousness of the person who had misplaced it? telaesthesia (or clairvoyance) of the lost book itself? or precognition of the owner finding the book in the future? (1895h, 397). All that could be said was, in essence, that some undifferentiated, homogeneous panaesthesia in the ultraviolet range, above the boundary of the supraliminal segment, of the automatist's spectrum of consciousness had conveyed, through her automatic writing, the location of a lost book.

It is also important to note that Myers warned his

readers not to take his model of the spectrum too literally. Consciousness was surely not so simple a matter as a linear (or even three-dimensional) model might suggest, since all mental phenomena -- subliminal or supraliminal, infrared or ultraviolet -- were part of one consciousness or Self and therefore inextricably interrelated (1903, 1:18). Thus,

there is not necessarily any deeply-lying distinction between powers which I have classed as infra-physiological [infrared] and powers which I have classed as supra-psychological [ultraviolet] beyond the respective limits of my imaginary spectrum. For aught we know, these powers may go often together. (1892d, 328-329)

Elsewhere, he suggested that a circular model might be more appropriate:

Observe...that the two subliminal prolongations of my imaginary spectrum -- say the phenomena of power over organic processes [an "infrared" phenomenon], and of clairvoyance [an "ultraviolet" phenomenon] -- do in fact approach each other, instead of lying more and more widely apart, so that my spectrum ought to be imagined as circular, not linear, and with the infra-red and ultra-violet regions running into each other in some deeply hidden way. (1892g, 438-439)

In one paper he offered a diagrammatic representation of such a circular "spectrum" (1895i, 586; the diagram is described on pp. 587-590). On this diagram he located both supraliminal and subliminal psychological processes with relation to a vertical time axis (with the past at one end and the future at the other) and to a horizontal psychophysiological axis (with matter at one end and mind at the other). Again, however, he emphasized that any such two- or even three-dimensional diagram was "an absurdly inadequate symbol of that n-dimensional infinitude of living faculty some few of whose properties we dimly perceive" (1895i, 585). There was, he believed, an ultimate unity or continuity to all phenomena of life that our categories inevitably disrupt: "The opposite direction of its [the diagram's] lines implies no ultimate divergence; all alike must be assumed to meet at infinity" (*ibid.*)

Nevertheless, our categories of thought are necessary

to us, and analogies or models such as Myers's "spectrum" of consciousness -- inadequate as they are -- can serve the important purpose of furthering our understanding of a phenomenon, "if used with caution" (1892d, 329).

Shephard (1978, 183) argued for "the importance of spatial visualization in thought" for the generation and conceptualization of scientific ideas or other creative processes. Deese (1972, 39-42) pointed out that many scientists and philosophers dislike models and metaphors because they oversimplify, they are inaccurate in some respects, and they "serve no logical function." Yet, he went on, "for many people...the real heart of the understanding of science is in its models...[and] understanding is as significant as [is] the development of the logical consequences of some theory" (41).

In sum, therefore, Myers thought it would be helpful to visualize the evolution of consciousness as the gradual shifting of the supraliminal segment up the spectrum in the direction of the ultraviolet region, thus gradually relegating more and more psychological processes to the infrared region as they are mastered, while, simultaneously, drawing new, latent psychological processes out of the ultraviolet region and into the supraliminal (or "visible") portion of the spectrum. This model helped, first, to illustrate that the supraliminal, overt mind is only a fragment of the entire consciousness. But, perhaps more importantly, it also helped to illustrate that the supraliminal, overt mind is not a stationary, fixed range of processes and that the boundaries separating the infrared end, the visible segment, the interspersed "dark bands," and the ultraviolet end of the spectrum are likewise not fixed or even precise, but are fluid and continually shifting. An evolutionary model, in fact, demanded a certain amount of instability if there was to be adaptation in the face of change: "Self-adaptation to wider environments must inevitably be accompanied...by something of nervous instability" (1903, 1:92). As a result of this instability, during the course of evolution there was "a

continual displacement of the threshold of consciousness" (1903, 1:16). Similarly, on the individual level, "the personality of each of us is in a state of constantly shifting equilibrium" (1893d, 9), as the range of our supraliminal awareness expands, contracts, and shifts and as the processes over which we have conscious, or supraliminal, control become increasingly complex.

Unity and Multiplicity: A Tertium Quid

With this evolutionary model of a Self whose latent capacities gradually emerge and whose emergent manifestation grows increasingly complex in response to the demands of the environment, Myers thought that psychology could move beyond the conflict between the old concept of mind as a unity and the new concept of mind as a multiplicity, and affirm that both views were in fact correct. Human mind or personality is, he insisted, "at once profoundly unitary and almost infinitely complex" (1903, 1:34). Self or individuality -- the original whole light ray, in the metaphor of the solar spectrum -- registers or otherwise incorporates within itself every sensation or idea that comes within its range of experience: These are "the elements of our personality." Our ordinary, familiar waking self consists of those few "elements selected for us in the struggle for existence" and bound together in a more or less stable chain of memory. In certain circumstances, however, other chains of memory or groupings of elements may form: "The letters of our inward alphabet will shape themselves into many other dialects; -- many other personalities, as distinct as those which we assume to be ourselves, can be made out of our mental material" (1889g, 195). Moreover, the number of such groupings or personalities may be endless: "The fresh combinations of our personal elements...may be evoked, by accident [e.g., spontaneous somnambulism or multiple personality] or design [e.g., hypnosis or suggestion], in a variety to which we can at present assign no limit" (1888c, 387).

On the other hand, behind the multiple elements and

groupings of elements of our being, there was only one being: a "perdurable Unity" behind "the shifting elements" (1889i, 343; see also 1885a, 1885d). It was erroneous, he thought, to conclude that the analysis of personality into many components meant that there was no ultimate unity behind it, "that this view of our personality as a complex, a shifting thing...must bring with it also a presumption that there is nothing in us beyond this ever-changing identity" (1887b, 260). The fear that "the analysis of man's personality would end in analysing man away" (1885a, 249) was unfounded. On the contrary, only by analyzing human personality further, by "pulling ourselves to pieces," could we "hope to find indications that there is something in us larger and more perdurable than we had previously supposed" (1889g, 195).

In particular, Myers found it significant that, in certain hypnotic and psychopathological cases, the various personalities were not totally isolated; some of them were, in varying degrees, aware of others. In Janet's case of Léonie (or Madame B.), for example, the secondary personality, Léontine, was aware of Léonie, although Léonie was unaware of her; and the third personality, Léonore, possessed the memories of both the other two, even though they were both unaware (directly) of her existence (see Myers, 1903, 1:322-326). Similarly, in Morton Prince's case of Christine Beauchamp, there was a hierarchy of selves in which each one knew about the one(s) preceding it, but not the one(s) above it (Prince, 1900, 1905/1930). Although this "hierarchy" of memory was not straightforward or even present in every case of multiple personality, it was a common enough feature to be noteworthy:

We all know that the hypnotised subject as a rule remembers waking life, but that the awakened subject as a rule has wholly forgotten the effects of this hypnotic trance. The full significance of this fact...has hardly yet, I think, been realised in any quarter. (1892c, 303)

The significance was that there may in fact be an underlying unity to human personality. Like different subsets of a large set, the different groupings of ele-

ments (or selves) may be totally isolated; they may overlap to a greater or lesser extent; one larger self may include one or more smaller selves as subsets of itself; or, under certain conditions, boundaries between subsets may even dissolve entirely, leaving the original set as a whole.

Death, Myers hinted, might bring one of those "conditions," breaking down boundaries that our present environment has set up between the various subsets of our consciousness: "The doubt whether we are our selves already may suggest that our true subjective unity may wait to be realized elsewhere" (1885a, 249). Just as changes now in our state of consciousness may profoundly alter our chain of memory, "I conceive it possible that at some future time, and under changed conditions, I may recollect all; I may assume these various personalities under one single consciousness" (1892c, 301).

It is important to understand, therefore, that Myers's hypothesis of the subliminal self was not simply a hypothesis of the multiplicity of personality, but went further and tried to reconcile the paradoxical multiplicity and unity of human personality:

My contention is, not, as some of my critics seem to suppose, that a man (say Socrates) has within him a conscious and an unconscious self, which lie side by side, but apart, and find expression alternately, but rather that Socrates' mind is capable of concentrating itself round more than one focus, either simultaneously or successively. I do not limit the number of foci to two, and I do not suppose that the division of the brain into two hemispheres is the only neural fact corresponding to the psychical fact alleged. (1885c, 129)

Morton Prince, for example, said that it was "a fundamental error" to say "that normally and habitually there is a persistent hypnotic self...a definite entity occupying a definite place in the mental economy" (1905/1930, 44). Anyone (e.g., Jastrow, 1906; Mallock, 1903), however, who attributed this idea of two co-existing, discrete selves to Myers's hypothesis of the subliminal self misunderstood it: "I do not...assume that there are two correlative and parallel selves existing always within us"

(1903, 1:15). Instead, he assumed that there was one common ground of personality -- which he called the individuality -- out of which ordinarily emerged one, relatively (but not entirely) stable personality, but out of which there may also emerge other psychological elements or even personalities. Some of these "personalities" may be more persistent or extensive than others; but none of them was "more than a fragment" of that common ground from which they emerged (1903, 1:15).

In short, to understand that, in Myers's hypothesis of the subliminal self, mind is both a unity and a multiplicity (or -- like light -- both a wave and a particle), one must recall the important distinction he drew between "individuality" and "personality."⁷ Each of us has (or rather is) one of the former, even though we may have many of the latter: "The human individuality [is] a practically infinite reservoir of personal states; -- as a kaleidoscope which may be shaken into a thousand patterns, yet so that no pattern can employ all pieces contained in the tube" (1892f, 363).

Sleep and the Evolution of Consciousness

Myers's model of the subliminal self was intended to be applicable to all psychological phenomena, showing a coherent relationship between conscious and subconscious, normal and abnormal. One phenomenon to which he applied it, therefore, was sleep, a normal and recurrent alteration in consciousness that all of us experience. Even though physiologists had thus far failed to reach a physiological understanding or definition of sleep, Myers attempted to provide a psychological one (1892f; 1903, Ch. 4), and therefore he was concerned with "such manifestations of thought or sensation as the sleeping state affords" (1892f, 365). Following up Aristotle's "hint" that the soul resumes its true nature in sleep (Myers, 1880, 68n), Myers suggested that sleep had been an early form of consciousness and was similar to the present consciousness of sub-human animals: "The permanent state of lower organisms, the primary state of

higher organisms, is one much more analogous to sleep than to waking" (1892f, 363). Similarly, "sleep is the infant's dominant phase; the pre-natal state resembles sleep rather than waking; and so does the whole life-condition of our lowly ancestors" (1903, 1:101). Thus, sleep is an early differentiation from that "earlier and less differentiated condition," or primitive anaesthesia (1903, 1:21); and the evolution of consciousness is a process in which, in response to environmental demands, we become "more and more awake" (1892f, 363). Furthermore, just "as sleep precedes vigilance, so do dreams precede thought" (*ibid.*); dreams, he thought, represented "the kind of mentation from which our clearer and more coherent states may be supposed to develop" (1903, 1:58). In short, sleep and dreams constitute an earlier, or more primitive, form of consciousness that now falls in the infrared region of the psychological spectrum.

Myers's psychological definition of sleep, therefore, was that it is "an alternating phase of our personality" (1898b 105), in which the organism reverts to a more primitive state of consciousness for reparative purposes: "It is a fully admitted, although an absolutely unexplained fact, that the regenerative quality of healthy sleep is something sui generis, which no completeness of waking quiescence can rival or approach" (1903, 1:123). Myers attributed this characteristic feature of sleep to its being a primitive, now subliminal, state of consciousness: "To sleep's concentrated inward attention I ascribe its unique recuperative power" (1898b, 105). In Hughlings Jackson's hierarchical theory of nervous functioning, a lower level takes over the primary functioning when a higher level ceases to function. Similarly, in Myers's theory, consciousness reverts to an evolutionarily earlier level of functioning when a more advanced one ceases to function. In sleep, the organism's attention is withdrawn from the waking or supraliminal state, allowing the infrared portion of the spectrum of consciousness to take over. In Myers's model of mind, the infrared region consisted of those more

primitive processes of functioning that, at an earlier stage of evolution, had once been conscious but had now become automatic and unconscious. The infrared subliminal portion of consciousness retained a potential "increased control over organic functions at the foundation of life" (1903, 1:123). During sleep, therefore, there is decreased control over "complex muscular processes," but increased control over "profound organic processes," thus making sleep the "regenerative phase of our personality" (1903, 1:152; 1898b, 105).

For Myers, therefore, sleep was "no mere abeyance of waking activities, but rather a phase of personality with characteristics definitely its own" (1892f, 365). Psychologists, he believed, should not treat sleep negatively as an abeyance of faculty, but rather "positively,...as a definite phase of our personality," with psychological processes and functions of its own: "To some extent at least the abeyance of the supraliminal life must be the liberation of the subliminal" (1903, 1:122). The most obvious and important of these are reparative organic processes, but there were also others indicating a kind or a level of psychological functioning different from that in the supraliminal waking state. Perhaps the second most obvious characteristic is that in sleep the individual's capacity for imagery or visualization often increases markedly. In dreams most commonly, but also in hypnagogic and hypnopompic illusions, there is a capacity for internally generated imagery beyond the person's ordinary waking capacity: "The generation of a hallucinatory figure (however useless⁸ an achievement) marks probably the highest point which man's visualizing faculty ever reaches; and it is noteworthy that with many persons this point should be attained in dream alone" (1892f, 370). This imagery is most commonly visual, but hyperacuity of other senses may occur as well (1892f, 370-372).

Evidence for hypermnesia, or a heightening of memory, may also be found in sleep and dreams. For example, "we occasionally recover in sleep a memory which has wholly

dropped out of waking consciousness," a phenomenon Myers considered common enough so that "no one will raise any doubt about it" (1892f, 380-381). More interestingly, however, there are also occasional dreams reported in which facts of which the person had never supraliminally been aware may figure (1892f, 381-392). Such extensions of memory suggested to Myers that, in sleep as well as in other subliminal states of consciousness, memory may be more extensive (that is, cover a wider range of experience) than does supraliminal, waking memory -- even if it is also less focused, controlled, or detailed than supraliminal memory: "It is the memory furthest from waking [supraliminal] life whose span is the widest, whose grasp of the organism's upstored impressions is the most profound," even if it is not also the most "complete or...reasoned memory" (1903, 1:129). Myers was even led, primarily on the basis of observations of memory in hypnosis, to suggest that the relationship between state of consciousness and extent of memory was an inverse one: "The further we get from the surface [of consciousness] the wider is the expanse of memory which we encounter" (*ibid.*). Furthermore, the study of dream memory and the ways in which it differs from waking memory also interested Myers because the observed continuity of memory between dreams and other altered states of consciousness, such as hypnosis or spontaneous somnambulism, suggested to him the persistence and ultimate unity of subliminal consciousness (1892f, 378-380).

Myers also reported cases of dreams in which other cognitive processes of the dreamer seemed to have been enhanced. Some cases showed simply that the dreamer might draw on perceptions that had been subliminal only, to make correct inferences beyond the range of his or her normal range of inference (1892f, 380). In other cases, however, the dreamer's cognitive processes seemed to have been enhanced such that he or she was able to solve problems that had so far been insoluble to the waking consciousness (1892f, 392-395).

The above faculties associated with sleep and dreams

were all examples either of increased control over organic processes or enhanced functioning of normal mental processes -- subliminal processes, in the spectrum analogy, either in the infrared end or in the dark bands interspersed within the "visible" or normal range of consciousness. Myers's model of the subliminal mind suggested, however, that if sleep is a state of consciousness in which subliminal processes take over from supraliminal ones, then sleep should also facilitate subliminal functioning in the ultraviolet range of the spectrum. This did, in fact, seem to be the case. In an early paper reporting some veridical apparitions and other apparently telepathic experiences, Myers and his colleagues noted the "heightening effect of sleep" in allowing such subliminal impressions "to cross the threshold of consciousness" (Barrett, Massey, Moses, et al., 1883, 140). However, he also warned of the difficulty in drawing a firm line between cases that could be attributed to hyperaesthesia, hypermnesia, or other enhancements of normal mental processes, and cases in which a "supernormal," or newly and gradually evolving form of perception, might be operating. Many cases, therefore, were ambiguous and had to be considered "a transition from mere hyperaesthesia and hypermnesia to...supernormal powers" (1892f, 398).

In sum, whereas the waking consciousness consists of a small segment of the spectrum on which consciousness is intensely focused, sleep "represents a stage of wider potentiality; a stage where a longer spectrum is more faintly seen" (1903, 1:21). Thus, sleep provides a normal and frequently recurring state of consciousness for studying at least some of the mind's subliminal operations and thus learning more about the extended range of mental functioning that Myers believed belonged to every individual consciousness. As I will describe in more detail in Chapter 7, Myers therefore also believed that it was important to study dreams. Just as sleep, in his conception, was not simply an absence of waking functioning, dreams were not just "echoes or fragments of

waking experience, fantastically combined" (1892f, 365). Dreams were the evolutionary precursor of thought (1892f, 363). Moreover, as representations of subliminal operations of mind, they were a kind of language of the subliminal consciousness -- a language, Myers noted, that was often symbolical in content rather than literal. As the most common form of subliminal communication, they could, he believed, provide insight into the nature, as well as language, of less common subliminal operations, such as hallucinations or telepathy; and therefore "dreams should be subjected to an analysis far more searching than they have as yet received from any quarter" (1892f, 365-366).

Abnormal Psychology: Evolutive and Dissolutive Phenomena

Myers also thought that his model of mind could be applied to a wide range of psychological phenomena less common than sleep, but he emphasized repeatedly that it was especially important now to begin to study these phenomena from a purely psychological, or theoretical, perspective, rather than a medical, aesthetic, ethical, or any other one. The psychological perspective that he suggested had two central, but closely related components. In the first place, Myers assumed that mind was still evolving. Hughlings Jackson had described the ongoing process of evolution and dissolution in the nervous system, defining "dissolution" as "the reverse of the process of evolution" (Jackson, 1884, 590). Myers extended Hughlings Jackson's hypothesis to insist that an evolutionary hypothesis of mind implies that there will be both "phenomena of degeneration [dissolution] and phenomena of evolution" in mental functioning as well as nervous system functioning (1903, 2:194). Abnormal psychological phenomena, or deviations from the usual psychological state, are thus not necessarily always pathological or retrogressive; they may also be beneficial or progressive. It was "question-begging...to call [all] novel states morbid" (1887b, 245). Unless one were "to argue that the genus homo has reached its fore-

ordained evolutionary limit" (1903, 1:71), one must assume that, psychologically speaking, there can be progressive as well as retrogressive alterations to human consciousness.

The other major component to the purely psychological perspective Myers urged his colleagues to adopt was that all alterations of consciousness -- whether evolutive or dissolutive -- were the result of an instability or "permeability" of the psychological boundaries between supraliminal and subliminal processes. Myers's model of mind was based on "the principle of a restricted personality" with "a wider personality subjacent but habitually unreachable" (1893d, 20) -- the principle, that is, of a limited portion of the spectrum embedded in the remainder of the spectrum. The boundary between them, however, was more or less "permeable," such that there was a constant exchange of material between them. The boundary had to be labile if change, adaptation, and evolution were to occur, and such lability or "nervous instability" could bring changes in either direction -- retrogressive or progressive.

This thesis that mental phenomena take both evolutive and dissolutive forms -- and not just normal and pathological ones -- was one of Myers's earliest beliefs. Most 19th-century scientists took the view that any "abnormal" phenomenon was degenerative or pathological. This was the prevailing view among French clinicians, and scientists such as Maudsley and Cesare Lombroso had carried it to an extreme, insisting that even such apparently beneficial phenomena as religious ecstasy or genius were in fact symptoms of disease or insanity. In Chapter 3 I quoted from an 1883 letter in which Myers opposed the thinking of Maudsley and others who "associate religion and the mad house, psychology and the vivisection-table, Love and the Strand" (Myers, 1883). Many scientists -- and others -- "know well that man can fall below himself; but that he can rise above himself they can believe no more" (1886b, lvi). As I mentioned in Chapter 5, in 1885 Myers introduced "supernormal" as a

word analogous to "abnormal" but implying evolutive (or progressive) rather than pathological (or retrogressive) abnormal phenomena, and he summed up the distinction between them as follows:

I regard all psychical, as well as all physiological activities as necessarily either developmental or degenerative, tending to evolution or dissolution. And further, whilst altogether waiving any teleological speculation, I will ask [the reader] hypothetically to suppose that an evolutionary nisus, something which we may represent as an effort towards self-development, self-adaptation, self-renewal, is discernible especially on the psychical side of at any rate the higher forms of life. Our question, Supernormal or abnormal? -- may then be phrased, Evolutive or dissolutive? And in studying each psychical phenomenon in turn we shall have to inquire whether it indicates a mere degeneration of powers already acquired, or, on the other hand, 'the promise and potency,' if not the actual possession, of powers as yet unrecognised or unknown....Analogy..., both physiological and psychical, warns us not to conclude that any given psychosis [that is, psychological datum] is merely degenerative until we have examined its results closely enough to satisfy ourselves whether they tend to bring about any enlargement of human powers. (1885b, 31-32)

An understanding of abnormal phenomena as potentially evolutive as well as dissolutive was particularly important to psychology if a purely psychological (or theoretical), as opposed to medical, understanding of them were to be achieved. Clinicians, not surprisingly, see primarily the morbidity and losses associated with abnormal processes, and their purpose is to restore the patient to an ordinary level of functioning (1898b, 103; 1900c, 384). Myers thought that the psychologist, in contrast, should be interested also in what capacities may be gained in abnormal states, "rare and useless" as they may appear: "The more rare and useless the faculty, the more interest it has" as a source of potential new knowledge, because it may signal to the psychologist enhanced levels or even new kinds of psychological functioning not ordinarily apparent (1898b, 103). Even "the extreme incoherence and silliness" of some phenomena "does not prevent the process itself from being in a high degree instructive" to the psychologist (1889a, 532).

Thus, "it is the business of the physician to look out for degeneration -- to avert dissolution -- ...[but] it should be (though it has not often been) the business of the psychologist to look out for extensions of capacity -- to recognise evolution" (1892c, 315). In a review (1900c) of Janet's Névroses et Idées Fixes and Flournoy's Des Indes à la planete Mars, Myers contrasted the two approaches to, and perspectives on, abnormal subconscious processes, Janet's being the "therapeutic," or clinical, one, Flournoy's being the purely scientific, theoretical, or psychological one.

Myers was careful to emphasize, however, that in his insistence on acknowledging, as psychological phenomena, evolutionary or progressive subliminal mental processes, he did "not mean to imply that [subliminal] mentation is ipso facto superior to supraliminal...that all our best thought was subliminal, or that all that was subliminal was potentially 'inspiration'" (1903, 1:71-72)⁹.

Clearly, many abnormal psychological phenomena are degenerative and harmful: "Hidden in the deep of our being is a rubbish-heap as well as a treasure-house; -- degenerations and insanities as well as beginnings of higher development" (1903, 1:72). But there was "real psychological danger in fixing our conception of human character too low; some essential lessons" concerning the nature and functioning of human personality "are apt to be missed" (1903, 1:50). The distinction between the subliminal and the supraliminal, as well as between the evolutive and dissolutive, is "a purely psychological one" (1900d, 289; 1903, 1:72), in a structural and in a dynamic sense.

To those, therefore, such as Helen Dallas, who asked: "Are we then to believe that the subliminal self is both wiser and more foolish, truer and more false, more understanding and more ignorant, more reliable and more untrustworthy than the normal self?" (Dallas, 1900, 288), Myers's answer was Yes. The elements of the subliminal self -- or, more accurately, the individuality -- can be arranged in numerous patterns or even "selves," running

the gamut from the lowest, most elementary or fragmentary, primitive, and worst to the highest, most complex and complete, advanced, and best.

A Psychological Mechanism: Myers noted also that Breuer and Freud had been puzzled by their seemingly paradoxical observation "that amongst hysterics we find the clearest-minded, the strongest-willed, the fullest of character, the most acutely critical specimens of humanity" (1893d, 14;¹⁰ quoting from Breuer, J. & Freud, S., The psychical mechanism of hysterical phenomena, Neurologisches Centralblatt, Jan. 1 and 15, 1893). The apparent relationship between genius and insanity had also long been noted and debated (and still is). On Myers's model of mind, however, these observations were to be expected. Those with the greatest "permeability" in the boundary between supraliminal and subliminal operations would have the greatest potential for enhanced or abnormal mental operations, both of a positive and of a negative nature.¹¹

On the other hand, to those who noted the phenomenological similarities between, say, genius and insanity, a trance medium and an hysteric, or the silliest "twaddle" of a spiritualist medium and the most evidential utterances of an entranced Mrs. Piper, and insisted that all alike must be the same qualitatively -- whether all rubbish or all revelation -- Myers answered with what he thought should become "a guiding principle in psycho-physiological inquiry":

We must expect that supernormal phenomena, if they occur at all, will show many points of resemblance to abnormal -- nay, to positively morbid -- phenomena, without therefore themselves necessarily deserving to be classed as morbid in any degree. When unfamiliar impulses arise in the organism -- whether these impulses be evolutive or dissolutive in character -- their readiest paths of externalisation are likely to be somewhat similar. (1887b, 213)

By "path of externalisation," Myers meant the outward or phenomenological manifestation that an idea might take, as, for example, the idea of a friend might take a verbal form (speaking about him), a motor form (writing him a

letter), or even a sensory form (having a visual or auditory hallucination of him). Thus, Myers was suggesting that, just as the psychological mechanism behind, say, genius and insanity might be the same -- namely, a "nervous instability" or lability that makes the boundary separating supraliminal and subliminal processes more permeable -- so too the forms that the phenomena of genius and insanity take might be similar.

Phenomenologically, the hallucinatory voices that Socrates heard resemble the hallucinatory voices that an insane person hears. Yet even though the psychological mechanism and "paths of externalisation" in the two situations are the same, it does not follow that Socrates was necessarily insane or that the insane person was a genius (1889a).

One related line of research that Myers suggested was to examine the possibility that the forms that abnormal or supernormal psychological phenomena take in a particular individual might be related to that individual's predominant mode of functioning. Galton, for example, had suggested that some individuals are primarily visual in their psychological functioning, others are primarily auditory, and still others primarily motor. Myers conjectured, therefore, that abnormal psychological processes, whether degenerative or supernormal, would likewise take forms corresponding to that person's primary mode of functioning, or to the "path...worn the smoothest" -- visual, auditory, or motor -- in that person's brain (1889a, 535-536).¹²

A Hemispheric Hypothesis: Myers made another important suggestion for a "brain path" that subliminal functioning might take. In 1885, following up on the suggestion of a correspondent, P. H. Newnham, Myers proposed the hypothesis that, whereas the supraliminal waking consciousness operates predominantly through the left hemisphere of the brain, subliminal states of all kinds -- evulsive as well as dissolutive -- operate primarily through the right hemisphere (1885b; 1885e, 20-24): "In

graphic automatism [automatic writing] the action of the right hemisphere is predominant, because the secondary self can appropriate its energies more readily than those of the left hemisphere, which is more immediately at the service of the waking mind" (1885b, 43). This idea was again based on Hughlings Jackson's idea that when one level of functioning is damaged or inhibited or otherwise ceases, a less well-developed, lower level of functioning will take over.¹³

One important phenomenon suggesting this hypothesis to Myers had been the various neurological disorders of aphasia, and particularly agraphy (as he called the disorder of the ability to write) (1885b). Myers noted that there were certain phenomenological similarities between automatic writing (especially in its early stages) and the writing of aphasic (or agraphic) patients. For example, the writing in both situations is often uncoordinated, scrawled, repetitious, or senseless (1885b, 36-38). More particularly, in both situations backwards writing or even more complex inversions of letters will occur (1885b, 39-40). Myers also pointed out that there are similar parallels in abnormal speech phenomena -- between trance-utterances, glossolalia, and the like on the one hand, and aphasic speech disorders on the other (1885b, 46). ————— → Moreover, there was a tendency, noted in various forms of automatisms, toward swearing and other crude emotional interjections. Hughlings Jackson had attributed this characteristic of aphasia to the dissolution of higher speech functions, which left only lower-level, primitive, or instinctive forms of speech to survive (Myers, 1885b, 44-45); and in general neurologists attributed all aphasic phenomena to the inexperienced right hemisphere's taking over for the damaged left hemisphere. Myers left it up to neurologists to prove that hypothesis. His own purpose was simply to suggest that there were parallels between neurological disorders such as aphasia and psychological automatisms such as automatic writing, and that whatever mechanism lay behind one set of phenomena might also lie

behind the other, even if the causes behind the two sets of phenomena were entirely different (1885b, 39).

Other phenomena, however, also seemed to support Myers's hypothesis. He and his colleagues had noted early in their research that, in experiments to transmit images telepathically, the percipient's response sometimes showed an inversion or reversal of the image (Gurney, Myers, Podmore, & Barrett, 1883, 161, 165; Myers, 1885b, 44). A reversal of letters similar to that found in automatic writing and agraphy sometimes occurred also when messages were spelled out by table-tilting (1885b, 39n) or in writing that appeared in crystal visions (1892g, 500. 506. 510. 515). Myers later became interested in the question of whether ambidexterity might be associated with certain subliminal functioning -- his idea being that a more active (or readily activated) right hemisphere might result in both ambidexterity and enhanced subliminal functioning. Although he never pursued the question in any systematic way, a few preliminary inquiries among some former child prodigies (and some automatic writers) suggested that some of them were more or less ambidextrous (1892e, 356; 1903, 1:82, 84-85, 2:177). He also predicted that sleep deprivation might result in "some lack of concordant action of the two hemispheres," thus perhaps leading a person to "believe himself to be two persons" (1886a, 242). He knew, however, of only one supporting case, in which the person reported that, after five sleepless nights, "the brain seemed divided into two parts, thinking independently, and one side putting questions while the other answered them" (1886a, 242; quoting from an account reported by Hughlings Jackson).

Myers's suggestion that the subliminal portions of our spectrum of consciousness might find their "readiest path of externalisation" through the right hemisphere may receive some support from modern observations that right-hemisphere functioning is, for the most part, nonverbal (see, e.g., Springer & Deutsch, 1981, for a review). Myers had remarked that "our subliminal mentation is less

closely bound to the faculty of speech than is our supraliminal" (1903, 1:98). More specifically, he had often noted that the "language" of subliminal consciousness seemed to be primarily pictorial and symbolic, rather than verbal (e.g., 1892g, 460; 1897, 70; 1903, 1:100, 277). Ordinary perception, he noted, is itself a kind of symbolism, in that it is a representation, not a replica, of reality: "The whirling molecules are translated for us by our narrow senses into patterns which our minds can comprehend" (1903, 2:551; see also 1903, 1:277). Perception by the subliminal consciousness, therefore, is probably even "more strongly symbolical" (1903, 2:551). The specific symbolism of verbal language has evolved to meet the needs of the supraliminal consciousness. The functioning of the subliminal consciousness, however, probably requires a different kind of "language"; and Myers predicted that "our intelligent study of visual and motor automatism will afford us sufficient proof that symbolism, at any rate pictorial symbolism, becomes increasingly important as we get at the contents of those hidden [subliminal] strata" (1903, 1:100). Thus, he said, art, music, and even poetry (whose "material... is the very language which she would fain transcend") are forms of subliminal language (1897, 70; 1903, 1:101).

Myers thought that his hypothesis also might help explain a frequently noted characteristic of automatic writing, trance speech, table-tilting, and other automatisms, and that was the puerile, silly, trivial nature of much of the content, "quite independent of the intellectual level of the automatist" (1887b, 212). This feature had, perhaps understandably, made such automatisms a target for much levity, derision, and repugnance. While understanding the repugnance many people (including himself) felt (1903, 2:258), Myers nevertheless believed that the fact should be a matter for instruction, not ridicule: "The interest [of most automatisms]...certainly does not lie in the wisdom of the oracle received" (1885a, 239). The interest, Myers

thought, lay in the possibility of learning to gain greater access to subliminal portions of our consciousness: "If once we can get a spy into the citadel of our own being, his rudest signalling will tell us more than our subtlest inferences from outside of what is being planned and done within" (1903, 2:91). He attributed the puerility, like other characteristics, of the phenomena to their being produced by the inexperienced right hemisphere. Therefore, the "much derided phenomenon of 'table-tilting'," for example, had a logical explanation (1903, 2:92): All functioning or forms of communication must go through a learning process or developmental sequence, just as an infant progresses from crawling to walking to more complex motor tasks. Table-tilting, therefore, has emerged "as in one sense the simplest, the least differentiated form of motor response" available to the subliminal consciousness, "a kind of gesture merely" (1889a, 533).¹⁴ Similarly, other forms of subliminal communication, such as automatic writing or trance speech, may represent rudimentary or early attempts and therefore be correspondingly simple, crude, or puerile. Myers thus also hypothesized that variations in the complexity and level of subliminal functioning or secondary personalities might be correlated with the amount of time the person has spent in the hypnotic state or the amount of time the secondary personality has been in "control" or functioning externally (1888c, 390-391).

Hysteria and Genius: The structure and dynamics of consciousness in Myers's theory are further illustrated (and clarified) by his approach to the phenomena of hysteria and genius. He considered both to be manifestations of the same general psychological mechanism -- that is, an unusual "perturbation," instability, or permeability in the boundary between subliminal and supraliminal processes. "Normal" individuals, in contrast, have a relatively stable, less permeable barrier -- and are correspondingly less variable: "The man who is in but small degree thus permeable, who acts uniformly on supraliminal

considerations,...is likely to be safe in prudent mediocrity" (1903, 1:116). The difference between hysteria and genius was a qualitative -- not scientific -- one: "There may be many different forms of such perturbation, leading to almost opposite results" (1893d, 8). Hysteria (which Myers called a "self-suggestive malady" or "disease of the hypnotic stratum") was for the most part (although not entirely) a dissolutive process, whereas genius (which Myers called a "subliminal uprush") was primarily an evolutive one.

Supraliminal human personality, in Myers's view, is on a continuum from theoretically complete disintegration of the elements (which would be total insanity) to theoretically complete integration -- the ideal state of total unity and control of all latent capacities toward which, he thought, consciousness is evolving (1893d, 6). The "normal" personality is not the ideal of total integration (as Janet and most French psychopathologists assumed), but falls somewhere in the middle of the continuum. It is "no true ideal, no stable synthesis, but rather a transitory and shifting compromise....The personality of each of us is in a state of constantly shifting equilibrium" (1893d, 6, 9). The equilibrium is maintained by a kind of psychological filter that controls the passage of psychological elements between the supraliminal and subliminal portions of consciousness. When there is "a lack of liminal stability, an excessive permeability, if I may so say, of the psychical diaphragm which separates the empirical [supraliminal] from the latent [subliminal] faculties of man," then there may be either an "uprush" from the latent material of the subliminal into the supraliminal or, conversely, a "down-draught" from the supraliminal into the subliminal. The former is genius, the latter is hysteria, although in neither case is the flow of elements one-way only (1893d, 8, 16; 1903, 1:20, 66).

The study and understanding of hysteria as a psychological phenomenon -- as opposed to a clinical or medical phenomenon -- was therefore important for three

main reasons. First, the purely descriptive, clinical approach had yielded much information, but little true understanding of hysteria. A nosological definition of hysteria had proven "impossible," since symptoms seemed almost infinitely variable; and even the term hysteria was "meaningless" (1893d, 5; 1903, 1:19). To attain "a comprehensive view," Myers urged, "we must seek it from some psychological standpoint" (1893d, 5). Second, since all manifestations of human personality fall somewhere on the continuum from a hypothetical total disintegration to an equally hypothetical total integration, then the study of the dissolution of personality might teach us much about its evolution, or integration, and how a "normal" personality maintains a relatively stable integration (1903, 1:19, 35). Finally, cases of hysteria provide "one of the most fertile sources of new knowledge of body and mind" (1903, 1:43). Hysterical symptoms are "phantom copies of real maladies of the nervous system." They are not, however, organically caused, since, first, they do not fit any anatomical pattern; second, they might periodically change location; and third, they could often be cured or made to disappear by suggestion. The apparent ability of the hysteric's subliminal consciousness to initiate and control, at some level, physiological processes that are normally beyond conscious control seemed to Myers to have important implications for an understanding of the relationship of mind and body.

The essence of a psychological understanding of hysteria is to understand the relation of the hysterical personality to the normal personality. Myers emphasized therefore that hysterical symptoms "are not pathological phenomena, but pathological revelations of normal phenomena, which is a very different thing" (1889c, 200). The "machinery" of an hysteric is the same as a healthy person's, but it is malfunctioning. Hysteria is not really a loss of functioning, but a narrowing of the field of consciousness so "that it can take in the minimum of sensations necessary for the support of life" (1893d, 17) -- just as the supraliminal consciousness of

any personality, normal or otherwise, is the narrowing or filtering of a larger potential consciousness. Unlike organic losses of function, hysterical symptoms are "the mere subsidence of these powers to a level where the empirical will can no longer reach them," but from which they can potentially be recalled (1893d, 16). They are not "extinguished," but submerged (1903, 1:46-47).

Hysteria is not solely the excessive narrowing of consciousness, however. Again, the losses are what concern the clinician, but the gains should also be of interest to the psychologist. Capacities that an hysteric shows -- such as hyperaesthesia or dissociability -- are capacities which we all possess, but they are "latent and unknown" in normal persons because they are not adaptive or necessary for normal functioning. Hysterics may show dissociability to an extreme degree, but some dissociability -- in the form of absorption in or concentration on a task -- is considered a positive characteristic in normal persons (1889c, 201). Other capacities exhibited by hysterics, such as control over certain organic or physiological processes, might also be latent in all persons and be considered a "gain" if they could be better understood and brought under more control.

In short, if understood as a psychological phenomenon, hysteria, in Myers's view, gave "striking" support to "my own principal thesis" (1903, 1:19), namely, that all personality is a filtering or narrowing of the field of consciousness from a larger Self, the rest of which remains latent and capable of emerging under the appropriate conditions. The hysterical personality, in essence, bears the same relationship to the normal, healthy, supraliminal personality as the latter bears to the ideal, totally integrated larger individuality of which it is an extract.¹⁵

Myers also argued that the study of genius could teach us about the structure and evolutionary dynamics of mind in much the same way as the study of hysteria could, since the same psychological mechanism that produced the

narrowing of consciousness in hysterics produced an expansion of consciousness in geniuses (1892e; 1903, Ch. 3). Myers believed that the evolution of mind was a general process of "gaining a completer control over innate but latent faculty" (1895d, 6). His definition of genius was that it was "an emergence of hidden faculty":

Genius -- if that vaguely used word is to receive anything like a psychological definition -- should rather be regarded as a power of utilising a wider range than other men can utilise of faculties in some degree innate in all; -- a power of appropriating the results of subliminal mentation to subserve the supraliminal stream of thought; -- so that an 'inspiration of Genius' will be in truth a subliminal uprush, an emergence into the current of ideas which the man is consciously manipulating of other ideas which he has not consciously originated, but which have shaped themselves...in profounder regions of his being. (1903, 1:71)

It is as if, as it were, "a vent-hole was opened...between the different strata of his being" (1892e, 359). As in hysteria, the flow of material between the subliminal and the supraliminal goes in both directions to some extent, but in the phenomenon of genius, unlike hysteria, "the uprush is helpful and the downdraught insignificant" (1897, 57).

By drawing more from the subliminal into the supraliminal than ordinary people are able to do, geniuses indicated "an advance in integration,...an advance in the main line of [human evolutionary] development" (1897, 69). Genius was not in any sense pathological, as Lombroso and others were then insisting (Myers, 1889g, 192; 1903, 1:71). It was neither madness nor morbid dissolution, even though genius, madness, and morbid dissolution resulted from the same psychological mechanism (1885c, 130; 1892e, 355). Any nervous disorders that occasionally accompanied genius or creativity were the product of the same instability of the psychological threshold, but they signalled, not dissolution, but a "perturbation which masks evolution" (1903, 1:93). Evolution involves the increasing complexity of the nervous system and requires a certain instability of the nervous system. That instability could produce

pathological as well as beneficial effects, but a genius was "no more morbid than a champion sculler is morbid because on the day after a hard-won race he has a pain in his back" (1889g, 192).

The advance represented by genius, however, was for the most part an intensification of familiar faculties rather than any addition of new ones. Myers again turned to his metaphor of the spectrum to make his conception clear. Even the visible portion of the solar spectrum is not, he pointed out, unbroken; because of processes of absorption, there are dark bands interspersed between the visible colors. Similarly, in the supraliminal portion of the psychological spectrum, there are, "even in the best of us," many dark bands. Genius, he suggested, is "a brightening of the familiar spectrum" (1903, 1:78). In other words, material has for the most part been drawn from the subliminal "dark bands" within the span of the supraliminal, rather than from either the infrared or ultraviolet ends.

The phenomenon of genius, therefore, includes the kinds of operations we are accustomed to calling genius, such as a high level of intellectual functioning or the unusually vivid inward visualization, auditory sense, or motor sense of an artist, musician, or dancer. Psychologically speaking, however, genius also includes such phenomena as hyperaesthesia (an intensification of the ordinary senses); hypermnesia (enhanced memory); an unusually accurate inward sense of the passage of time (sometimes observed in the ability to awaken oneself from sleep, or in the ability to carry out a post-hypnotic suggestion after a specified length of time); increased muscular sense (as in the then-popular parlor-game of "unconscious muscle reading"); or the alleged sensitivity to magnetic or meteorological effects (dowsing, for example) (1892e; 1903, Ch. 3). A psychological conception of genius, Myers insisted, was entirely different from the aesthetic conception, just as the psychological conception of hysteria differed from the medical one (1898b, 104). Whereas from the aesthetic view the important con-

sideration is the quality of the product, and from the medical point of view the important consideration is the functional ability of the organism, from the psychological perspective the important consideration is the psychological mechanism behind the phenomenon (1898b, 104): An "uprush of subliminal faculty...does not guarantee the objective excellence of the product" (1892a, 201). There are, in other words, two elements in judging a work to be one of genius: The first is the mechanism or act of creating, the second is the subjective, aesthetic judgment of others (1892e, 359). The first criterion is the only psychological one, and thus two works of art or two different phenomena may be "in the same psychological class" without being "in the same artistic class" (1903, 1:75).

Myers therefore suggested that a particularly important phenomenon for studying the psychological mechanism behind genius and creativity was that of arithmetical prodigies. The "calculating boy" was of the same psychological genus as a Shakespeare; even if not of "the highest order of art" or "a high form of genius," his ability was not "a mere curiosity" or "anomaly" (1898b, 104; 1892e, 349, 356). The products of the arithmetical prodigy, unlike those of the artist, can be judged on purely objective grounds; the answer is either right or wrong. Thus, the study of arithmetical prodigies can provide a relatively objective means of studying the otherwise subjective processes of inspiration and creativity (1892e, 356, 360).

Mental Causality: Some Larger Theoretical Problems of Psychology

Most of Myers's writing was devoted to describing and developing his ideas about the structure and dynamics of mind and supporting them with material taken from the rapidly growing literature of 19th-century psychology. But he also, on occasion, attempted to fit his ideas into an even larger picture and see how, in particular, an understanding of mind as more extensive in scope than we

usually suspect might be applied to such perennial and intractable problems as volition, the relation of mind and matter, and the role of mind or consciousness.

Volition: Myers had two suggestions for different ways of thinking about the problem of free will versus determinism -- a question that is, in essence, one about the nature and role of mind, since it asks whether mind is "not...pure effect, but a cause." He recognized that in its "ultimate" form the question is "insoluble" (1891c, 129-130); but that ultimate impenetrability should not, he thought, deter us from penetrating it as far as we can.

First, therefore, he suggested that, just as it had been a mistake to identify mind with our conscious mind, so it might be a mistake to limit volition to the relatively small supraliminal fragment of the total spectrum of consciousness. Volition should instead be considered the function of an individual's mind as a whole, subliminal as well as supraliminal, and not be limited to those acts an individual is aware of initiating. Experiments in hypnosis, particularly with post-hypnotic suggestion, had demonstrated that the line between volition and automatism is difficult to draw, since the subjective feeling that one is acting freely may in fact be illusive (1885d, 642-648; 1892c, 302-303). Such experiments had led some physiologists to suggest that if some "free will" is really illusory, then perhaps all is, and that automatism -- not volition -- underlies all behavior. Myers suggested that volition may not always, or even usually, be a function of the supraliminal self (1903, 2:518-523). Volition -- not automatism -- underlies all behavior, but it is the volition of the larger Self: "I think that we must not take for granted that this influence [volition] is necessarily accompanied with ordinary consciousness on the agent's part" (1886e, 165). In discussing the controversy over whether suggested hallucinations will follow optical laws or psychological laws, Myers said that they follow both: The subliminal

consciousness will use whatever means it can to accomplish the goal -- in this case, of sustaining the hallucination -- because it is "an intelligent adaptation of means to ends" (1892g, 448). A hypnotic suggestion, therefore, is effective because the larger subliminal consciousness "carries out the idea as well as it can, unhindered by the mistakes or clumsiness of the conscious mind" (1886h, 448).

Myers's second suggestion for a different way of thinking about volition grew out of his attempt to reconcile the phenomenon of precognition with free will, and, in a sense, it resembled the indeterminism of later quantum physics. Like many of his ideas, this one too suggested that both sides of the controversy were to some extent correct. Objects are, to our ordinary perception, solid and stationary; perceived in another way, however, they are a collection of constantly moving molecules separated by vast areas of space: "Within their tranquil clarity a myriad molecules jostle in narrow orbits or speed on an uncomputed way" (1895i, 592). Volition may therefore occur at the individual (or "molecular") level, while at a larger (or "molar") level individual actions will still fall into an overall pattern of regularity or "law": "Man's petty hopes and passions may make endless turmoil among its [the Cosmos's] minutest elements...; yet on a wide view they will average out, and will admit of predictions fulfilled immutably, and overriding the small Wills of men" (1895i, 592). To make his point more vivid, Myers again found a delightful metaphor: "'There will be about so many marriages next year,' says the Registrar-General; but he perforce leaves the individual brides and bride-grooms to sort themselves" (1903, 2:531). In short, "this problem of free human wills amid the predictable operations of unchanging law may resemble the problem of molecular motion amid molar calm" (1895i, 592).

Mind and Matter: The revelation of physics -- that the world operates quite differently on the molecular (and

smaller) level than it appears to do on the larger, molar level -- also suggested to Myers a different way of thinking about the relation of mind and matter. He quoted his close friend, the physicist Oliver Lodge, who had thought that there could be a non-material causal agency without thereby upsetting the law of the conservation of energy. Life, Lodge had said, may be a "directive and guiding force exercised upon matter...[but] not affecting the amount of energy in the slightest degree" (1903, 2:542; quoting Lodge in *Nature*, 44, 292). Myers suggested that mind directs and guides matter, not by acting on it *en masse*, but by affecting the motion of individual molecules.¹⁶ Even at our normal level of behavior, when we move, say, our hand, this action is executed by the activation of molecules of the brain that we do not consciously control, or even know about: The "orders are supraliminally conceived in molar terms, but they receive a molecular obedience....[There] is not a mere puppet-like movement of such molar mechanism as we could ourselves conceive, but...a rearrangement of molecules such as no science can at present trace or explain" (1903, 2:511).¹⁷

Myers then suggested that this "molecular hypothesis" could be carried further to place other apparent effects of mind on matter -- including supernormal (or paranormal) ones -- on a continuum with normal psychophysiological activity. Hypnotic (or self-) suggestion is effective because, somehow,¹⁸ it activates the volitional activity of the subliminal consciousness. The organic effects of hypnosis or suggestion, of stigmata, or of so-called faith cures (most of which, he believed, are probably self-suggestion) occur because of the potential volitional control over organic processes by the subliminal consciousness (1903, 2:513). Supernormal phenomena, therefore, both telepathic and telekinetic, may be no more than an extension of the subliminal consciousness's control over the molecules of one brain and body (its own) to the molecules of other brains, bodies, or objects.¹⁹ It may be an action on other objects

"such...as the living energy, whatever it be, in each of us is wont to exercise upon the brain" (1894c, 417; see also, e.g., 1891d, 131; 1893d, 23; 1894-1895, 200; 1903, 2:522). The extension of this hypothesis from normal to supernormal phenomena was, admittedly, a radical extension, but it arguably did not involve any process different in kind from normal psychophysiological processes, since the nature of psychophysiological processes is still unknown and precisely the major question at issue in psychology:

How that modification [of distant molecules] is effected...we cannot tell. It is the very secret of life which confronts us here; the fundamental antinomy between Mind and Matter....I here say only that since this problem does already exist, -- since the cells are in fact altered either by the thought or along with it, -- we have no right to take for granted that the problem, when more closely approached, will keep within its ancient limits, or that Mind, whose far-darting energy we are now realising, must needs be always powerless upon aught but the grey matter of the brain. (1894c, 421)

Although Myers's hypothesis that mind affects matter by directing and guiding the movement of molecules might seem "intolerably novel and extravagant" to some people, other people, he said, might recognize it as "the mere plagiarism of a familiar physical speculation" (1903, 2:531), namely, the physicist Clerk Maxwell's Demons. Maxwell's hypothetical demons, which he had created to depict his model of thermodynamics (Dampier, 1943, 257), were

imaginary entities conceived as illustrating what could be effected by creatures who could deal with molecules singly, -- as we might deal, say, with golf-balls, tennis balls, cricket balls,... -- instead of dealing with molecules only in the gross, and by prodigious multitudes at a time, which is all that we can actually do. (1895a, 22)

Lord Kelvin had taken up Maxwell's speculation on (in Myers's words) "this minutest species of Chimaera" and described in one of his lectures what this hypothetical creature might be capable of; and, as Myers pointed out, Lord Kelvin's speculations described precisely the kind of much-ridiculed physical phenomena reported at some mediumistic seances (1903, 2:531-534).²⁰

Myers insisted above all else, however, that our conceptions and categories of mind and matter were inadequate and incomplete -- as already suggested by both physics and psychology -- and that the study of super-normal phenomena such as telepathy could be crucial to bringing about new and more adequate ways of conceiving their relationship. He cautioned that "the categories 'material' and 'immaterial'...may be quite inadequate" (1890a, 247), and that "the line between the 'material' and the 'immaterial,' as these words are commonly used, means little more than the line between the phenomena which our senses or our instruments can detect or register and the phenomena which they can not" (1886d, 290). Anticipating a question that became of central importance after his death, in the wake of theoretical advances in 20th-century physics, Myers asked how one defines the distinction between subjective and objective when matter, which appears to have certain characteristics from one perspective, has different ones from another: "The impenetrability of matter, which seems our ultimate sensory fact, may be as relative and contingent a property as colour itself" (1890a, 247; 1903, 1:277). Moreover, a concept such as that of ether, he thought, seemed to bring us to "the brink of immateriality," even though it was probably matter in another form (c. 1884, 29).

If the old categories of mind and matter were inadequate, Myers thought, so must be the old categories of materialism and dualism which had derived from them. As dualists recognize, "the gulf between the objective and the subjective side of our experience remains unbridged" (c. 1884, 29-30). Yet the gulf also cannot be entirely "impassable," as dualists then often assume, since it is now "frankly accepted" that there is "a physical basis or concomitance for all the operations which go on within our own minds" (1886e, 178-179). There may be, he conjectured, a kind of monism underlying the phenomenal dualism: "The mysterious connexion of Mind and Matter" may be "some identity beyond our ken"

(1895i, 588).

The important aspect of Myers's thinking, however, was not this "speculative monism." He himself suggested that we must "lay aside, for the purposes of the present argument, the possibility of a monistic scheme of the universe...which may present in an unbroken sequence both what we know as Matter and what we know as Mind," since, "our intellects, as at present constituted," cannot yet transcend the dualism that experience presents us (1886b, 1). The important aspect of his thinking was instead his belief that phenomena such as telepathy break down both a materialistic and a rigidly dualistic scheme of the universe. He suggested that there may be "an intermediate conception of space -- something between space as we know it in the material world and space as we imagine it to disappear in the ideal world" (1903, 1:231), and that the study of telepathy and other supernormal phenomena might be able "to supply us with some hint" as to this intermediate conception of space and "the connection between our own consciousness and our organism" (1900c, 410). First of all, telepathy "breaks down a purely physiological synthesis of man" (1890b, 318), primarily because a physical hypothesis of telepathy such as that of "brain-waves (from which...Mr. Gurney and I were from the first careful to stand aloof) has become less and less plausible, less and less explanatory, as the evidence has accumulated" (1890b, 317; see also 1900c, 408-410, for details of his criticisms). Although he frequently used physical terminology to describe his ideas, he also repeatedly reminded his readers that they were only "suggestive analogies," that is, "aids to the imagination and nothing more" (Barrett, Massey, Moses, et al., 1884b, 135).

On the other hand, any plausible conception of telepathy, like that of any psychological phenomenon, must also include its presumed physical correlates:

Like all influences which touch and modify man's living, material brain, telepathy must needs have a physical side to it as well as psychical....[I]n however complex and latent a form, there must some-

where be a physical structure, a physical concomitance for all these things. (1894c, 422)

Perhaps one of the most important passages in Myers's writings is the following summary of his views on the mind-matter relationship and the potential role of psychical research in attacking this problem:

I do not like to assume that any effect perceptible to human senses is without a physical cause of some kind....Such physical cause or basis may no doubt be so remote from our ordinary physical conceptions that the philosopher may be justified in leaving it altogether out of the question, and in dealing with the interrelations of thought and emotion exclusively on the psychical side; but it seems to me that telepathy forces us into a position where it is no longer safe to assume any sharply-defined distinction of mind and matter, -- where we must rid ourselves of every metaphysical preconception and look to experiment and observation alone....We are now pretty well agreed that such concomitance [of mind and matter] does always and inevitably subsist within us; but we still speak of the interaction of thought and emotion -- of the "world of mind" -- as of a realm, or of operations, where no physical basis must be assumed. I think it possible that the facts of telepathy may compel us to extend our conceptions of physico-psychical concomitance, and to face the supposition that though forces may exist, and agencies operate, which the ordinary materialistic view altogether denies, yet these also may be correlated -- though above the limit of our intelligence -- with the force and matter with which our mathematical science already deals....[O]ur notions of mind and matter must pass through many a phase as yet unimagined. (1886e, 178-179)

A Psychological Principle: Finally, Myers believed that some such concept as telepathy -- the hypothesis that individual minds (or Selves) can, at some now-subliminal level, interact directly with other minds -- would be an important element in the major law or principle of psychology that he believed remained to be discovered. As I explained in Chapter 5, he thought that science now had three major principles or "laws." One was the law of Evolution, the major principle of biology; the second was the law of Conservation, the major principle of physics; and the third was the law of Uniformity, the major principle of science in general (1892g, 534; 1893b). The discovery of a comparably fundamental law was, he said,

crucial to "the future of Experimental Psychology"²¹: If psychology failed in this, "her knowledge must needs remain for ever superficial and fragmentary," whereas if such a law were discovered, he believed that psychology would become the apex of all other science (1892g, 534-535).

Myers believed that an important hint to what the new law of psychology might look like could be found in a concept that he had borrowed from the mesmerists and then adapted. In many of their papers on hypnotism and on apparitions, Myers and Gurney had frequently referred to the mesmeric concept of rapport. The mesmerists had believed that the effects they were able to elicit from their subjects resulted from a radiation, effluence, or force passing from the mesmerist to the subject. In their view, this force was "an entirely physiological phenomenon" (1903, 1:206). Myers and Gurney believed that the mesmerists might have been on the right track, but that instead of being a physiological phenomenon, the influence was a psychological one. This psychological "rapport" was "a specialised relation between two minds," a link or a "subtle intercommunication" between subliminal minds (1886d, 287; 1886b, lvii; 1903, 1:209). The notion of a psychological link between minds became the basis for Myers's concept of telepathy and, indeed, his concept of all supernormal interaction. The nature of the relation was as yet entirely unknown, as it had been for the mesmerists; certain people made good mesmerists or hypnotists, but no one understood why. The "rapport" did not, for example, seem "clearly referable either to kinship or to affection" (1884-1885, 100), and there were telepathic or other such cases "where no pre-existing rapport can even be suggested," since the people involved were strangers (1884-1885, 122). Myers suggested, however, that in some sense this telepathic or mental "rapport" might be the psychological equivalent of the concepts of molecular attraction (Barrett, Massey, Moses, et al., 1884b, 135) or of gravitation (1903, 1:38) in the physical world.

Myers also believed that this new general principle or law of psychology would establish mind as a primary and fundamental characteristic of the universe, and thus would suggest that the universe was neither the discontinuous two worlds of the old dualists nor the reductionistic one of the materialists and idealists, but was instead a hierarchy of worlds that were inextricably interwoven without being independent of, reducible to, or assimilable to another level. Whatever the new "law" of psychology might be, however, he thought that it would provide an essential tool for breaking down the old, fruitless dichotomies of dualism versus materialism, unity versus multiplicity, and free will versus determinism. With such a law,

the controversy, which is now too often like a fight between a dog and a fish, -- between the subjective instincts which glide in the ocean and the objective facts which bark on the shore, -- may be conducted in something more resembling a common element.

(1893b, 104).

CHAPTER 6

ENDNOTES

¹ That Myers was well acquainted with Hughlings Jackson's work is apparent not only from his frequent references to him (he once, for example, referred to certain papers of Jackson's as "indispensable" [1885b, 35n]), but also from a more personal connection. Jackson's famous epileptic patient, Dr. Z., was Myers's brother Dr. A. T. Myers (Taylor & Marsh, 1980).

² The confusion has not cleared up at all since Myers's day. In recent years, studies of split-brain and other neurologically damaged patients have newly provoked discussions and debates about the nature of mind, usually to the effect that they show that mind can be split and therefore is not a unitary entity but a collection of parts that operate in coordination (see, e.g., Churchland, 1983, 1986; Gazzaniga & LeDoux, 1978; Robinson, 1982; Sperry, 1968; Springer & Deutsch, 1981). Most modern authors, however, (Robinson being a notable exception), show little or no awareness that there is a mass of data from the 19th and early 20th centuries that is pertinent to their discussions and that provoked exactly the same discussions a century ago. This apparent lack of awareness of previous research and data has led some writers to suggest that recent neurological studies have somehow revolutionized our thinking about the nature of mind. One philosopher, for example, called split-brain effects "a phenomenon which is radically different from anything else previously known" (Nagel, 1979, 163). Surgically splitting the corpus callosum is a new procedure from anything previously known (although Fechner apparently theorized that if the brain were to be split, consciousness would also be split [see McDougall, 1911/1915]); but the modern experimental techniques used to study the effects of split-brain surgery are not markedly different from some of the 19th-century experimental techniques used to study hypnotic subjects or

hysterical patients (see, e.g., Barrett, Gurney, Myers, et al., 1883a; Janet, 1893/1901), and the debate over whether mind is a unity or not has not changed or progressed much in any qualitative way since the 19th century.

³ Understanding the distinction Myers drew between "individuality" and "personality" -- or between "Self" and "self" -- can, I think, clear up the confusion Gauld (1968) apparently felt with regard to Myers's theory of the subliminal self. Gauld complained about "the abstruseness and complexity of the concepts central to his theory, such as consciousness, mind, soul, spirit, personality, psychical activity," and he argued that in Myers's theory the "soul," not the "subliminal self," is the "unifying principle... 'behind' all mental phenomena.... The concept of the 'subliminal self' is simply not qualified to act as a unifying theoretical principle" (Gauld, 1968, 278, 295). I do not, however, agree with Gauld that "Myers offers little elucidation of these terms" (278). Myers was, in my view, quite clear in his distinction between a subliminal "self" (a personality alternate or in addition to the normal waking one) and the subliminal "Self" (the individuality or "unifying theoretical principle"). I will further discuss this distinction, and its role in Myers's attempt to help resolve the unity/multiplicity paradox of mind, below.

⁴ "Subliminal" was thus perhaps an unfortunate choice of terminology, since it means "below the threshold." Myers used the word "subliminal" to refer to "all that takes place beneath the ordinary threshold [of consciousness], or say, if preferred, outside the ordinary margin of consciousness" (1903, 1:14). In Myers's model of mind, waking consciousness is not the tip of an iceberg, with the unconscious or subconscious beneath. Instead, it is a segment taken, as it were, from the middle of the entire spectrum of consciousness. The words "subliminal"

and "supraliminal" are adequate to convey the idea that certain aspects of our experience enter into conscious awareness whereas others do not; but they are not adequate to convey the more complex model of mind that Myers developed to differentiate various kinds of subliminal phenomena. It might have been better if he had used the alternate word he suggested, "ultra-marginal," although it too was inadequate to convey the full range of Myers's conception of mental processes outside ordinary waking consciousness, since it did not depict the "dark band" areas of subliminal functioning occurring within the "visible" portion of the mental spectrum. In keeping with his model of mind as a spectrum, he might have used such words as "visible" and "invisible" consciousness, or "manifest" and "latent" consciousness.

⁵ As I will discuss further below, Myers suggested that volition should be considered a function of the entire Self, subliminal as well as supraliminal, and not just of the supraliminal, waking self.

⁶ Myers did not discuss the possibility that supernormal capacities might also appear in non-human organisms -- what today is referred to as "anpsi" (for a review, see Morris, 1977). Nevertheless, his model seems completely capable of including the notion of anpsi: The sensorimotor (or psychophysiological) processes in animal species have, like those in humans, evolved out of the original anaesthesia underlying all life. In doing so, they have often developed into forms quite different from those in humans; and animal species have also sometimes retained processes that humans have apparently "lost" (or that, in Myers's model, have been relegated to the "infrared" region). And, just as still-latent capacities may emerge occasionally in human functioning, they may also emerge occasionally in the functioning of non-human individuals.

⁷ Schiller (1894, 279-282) drew a distinction between the phenomenal "self" and the transcendental "Ego" that was similar to Myers's distinction between personality and individuality. Like Myers, he emphasized that the Ego is not a second self, but that the self is an extract of the Ego (410). In many respects, in fact, Schiller's and Myers's theories of mind are parallel.

Ducasse (1951, 495) later drew a similar distinction between individuality and personality.

⁸ I remind readers of Myers's observation that a particular faculty or behavior may be "useless" from our current, limited perspective, but not, in the long run, from an evolutionary or scientific perspective (1903, 1:150).

⁹ Jastrow, for example, was among those who apparently thought that Myers's hypothesis of the subliminal self was based on the notion that subliminal processes are "ipso facto" superior to supraliminal ones (see, e.g., Jastrow, 1906, 537). Jastrow seems, however, to have completely misunderstood Myers's hypothesis in general. He criticized it as based "upon a fundamental emphasis on the schism of conflicting personalities," and went on to argue that his own hypothesis of the "subconscious as a natural function with the most intimate relations to consciousness, ...both parts of a common synthesis, ...is diametrically opposed to that the subliminal self" (1906, 537, 539-540). Elsewhere (Jastrow, 1903), he criticized the hypothesis of the subliminal self as one of discontinuity and argued that the concept of the subconscious would not be recognized in psychology as important until the hypothesis of the discontinuity of consciousness and the subconscious was replaced by one recognizing their underlying continuity. Jastrow's hypothesis, in fact, was in many ways identical to Myers's hypothesis, particularly with regard to the ultimate continuity of conscious and subconscious processes. Some of the implications that Myers drew from the same premises were undeniably different from Jastrow's conclusions; and this

may explain why Jastrow (and others) have been so prone to misread and misrepresent Myers's hypothesis. (It may also help explain why Jastrow [1900] and others have also been so prone to misread and misrepresent psychical research in general.)

¹⁰ This paper (1893d, 12-15) was the first published account of Freud's work in English (Fuller & Fuller, 1986; Jones, 1961, 250). Myers called Breuer's and Freud's paper "an important essay" and remarked that "I could not wish for a more emphatic support...of the view of hysteria...to which my own observations...had already...directed my thought" (1893d, 12, 14-15). Freud went on, however, after Myers's death, to develop a model of mind and an interpretation of subconscious mental functioning vastly different from Myers's. Moreover, Freud, like most late 19th- and 20th-century psychologists, adopted the basic Jacksonian position of psychophysical parallelism that allowed psychologists to study mental phenomena in their own right, but without questioning the assumption that they are ultimately dependent on physical processes (Freud, 1895/1954; Angel, 1961).

¹¹ I will discuss in more detail below Myers's understanding of the relationship between genius and hysteria (and, by extension, insanity).

¹² It was a common belief in the 19th century that psychological functioning was accompanied by physical changes or "traces" left in the brain. Like water that flows through the terrain, taking the paths of least resistance and carving out established river-beds as it repeatedly passes through those paths, so (it was believed) the nerve-currents accompanying psychological processes flow through the nervous system, taking the "paths" of least resistance and carving out "established" paths that subsequent nervous action will become more and more likely to take. Carpenter, for example, described

memory, associative processes, and habits of thought as being the results of "nerve tracks laid-down" (1874/1882, 442). Likewise, in the Principles of Psychology, James frequently referred to "paths" in the brain and nervous system as the "anatomical substratum" of memory, association, and habit (James, 1890b, 1:108). Thus, for example, the "psychological law of association...[is] an effect, within the mind, of the physical fact that nerve-currents propagate themselves easiest through those tracts of conduction which have been already most in use" (1:563). Similarly, memory as a phenomenon of retention is "a purely physical phenomenon, a morphological feature, the presence of these 'paths,' namely, in the finest recesses of the brain's tissue," and the excellence of one's memory "will depend partly on the number and partly on the persistence of these [brain-] paths" (1:659)

Myers was somewhat more concerned to emphasize that here, as elsewhere, psychologists and physiologists still have no real understanding of the nature or extent of mind-brain concomitance. Therefore, in order to forestall readers who might be tempted to take his terminology of "brain paths" literally, Myers reminded his readers that he was using the terminology as a metaphor, and not "a real transcript of the unknown processes which actually occur" (1889a, 535).

¹³ After Hughlings Jackson in 1868 proposed his idea of a leading or dominant hemisphere, the assumption throughout the late 19th century, and indeed up until recent years, was that the left hemisphere (in most people) was the dominant one and that the right hemisphere was the lesser used one (Harrington, 1985; Springer & Deutsch, 1981). Research has since shown that the two hemispheres are instead, to some extent, specialized for different modes of functioning -- the left one being predominantly verbal, the right one taking over more spatial and visual functioning. The difference between the earlier and the more modern views on the role of the right hemisphere in

normal functioning does not invalidate Myers's general hypothesis on the role of the right hemisphere in subliminal functioning. In fact, as I hope will be evident below, modern findings about the general mode of right-hemisphere functioning seem to lend even more support to Myers's hypothesis.

14 Why the particular, and rather bizarre, phenomenon of table-tilting emerged as a crude "language" of the subliminal is a separate question from the general developmental process in subliminal communication that Myers was suggesting.

15 Myers carried this analogy further and compared the hysteric's frequent unawareness of and indifference to her limitations to the indifference of most normal people to learning more about the nature and extent of their own minds:

If we had been a populace of hysterics we should have acquiesced in our hysteria. We should have pushed aside as a fantastic enthusiast the fellow sufferer who strove to tell us that this was not all that we were meant to be" (1893d, 25).

16 By referring to the hypothetical element on which mind might operate as the "molecule," Myers did not mean this identification necessarily to be taken strictly:

"Assuredly neither the molecule nor the atom is the last word of analysis, as even the ordinary physicist would now agree. The whole process may be something far subtler than an action on molecules" (1903, 2:522). But, for his purposes, the word "molecule" could serve to designate the level of matter -- whatever that may be -- on which mind hypothetically operates.

17 Similar ways of conceiving the interaction of mind and brain have been proposed in more recent times. Sperry (1969), for example, suggested that consciousness has "a directive role in determining the flow pattern of cerebral excitation" (533). Eccles, in his Gifford lec-

tures (1979/1984; 1980) and in his book with Popper (Popper & Eccles, 1977), suggested that consciousness both "reads" and acts on, not molecules, but modules of the brain.

18 Myers's hypothesis does not add any mystery to the mechanism of suggestion. As he repeatedly pointed out, no one -- least of all those who confidently proclaim a phenomenon "explained" when it has been attributed to suggestion -- understands how suggestion is effective. As Andrew Lang later wrote, "to 'explain the explanation' is the task for the future" (Lang, 1911, 546).

19 Myers's hypothesis, and its associated belief that normal and supernormal psychophysiological processes operate by the same basic mechanism -- whatever that may be -- was later expressed again by Thouless and Wiesner (1946-1949).

20 Myers also pointed out that Lord Kelvin himself contemptuously dismissed these phenomena and others that the psychical researchers were trying to make sense of; yet if Lord Kelvin's own speculations on matter and energy should find both confirmation and development in a better understanding of these telekinetic phenomena -- we shall have a palmary example of the historic truth that a leader of thought in one age often prepares, while he protests against, the thought of the next; -- may be at once its most contemptuous opponent and its most illuminating precursor. (1903, 2:533n)

21 As I hope will become clear in the next chapter, by "Experimental Psychology" Myers meant scientific psychology, that is, a psychology that relies on the empirical methods of both experiment and observation. His concept of experimental psychology, therefore, was much broader than the rather narrowly defined meaning the term has developed in the 20th century.

CHAPTER 7

LATENT CAPACITIES: METHODS FOR EMPIRICAL STUDIES

General Methodological Approaches

Psychology has been defined in many ways, from the science of mind to the science of behavior. After Kant, psychologists began to reject the notion that psychology is the study of the soul or the mind, "mind" being considered a noumenal "thing-in-itself" and hence beyond the reach of empirical science (Patrick, 1911). In his 1886 and 1911 Encyclopaedia Britannica articles on psychology, James Ward (1911) warned psychologists not to use the words mind, soul, or consciousness in their definitions of psychology because of their metaphysical and religious connotations ("Hence F. A. Lange's famous mot: modern psychology is Psychologie ohne Seele"). His definition ("the science of individual experience") and William James's definition ("the Science of Mental Life" [James, 1890b, 1]) were attempts to depict psychology as the study of phenomenal mind rather than noumenal mind; but the paradox of attempting to apply the objective methods of science to the essentially subjective phenomenon of consciousness still remained. Moreover, the concept of psychology as the study of mind or consciousness became identified closely with Wundt's introspective subjective methods, and this too fueled the move to define psychology instead as the science of behavior. McDougall argued that

psychologists must cease to be content with the sterile and narrow conception of their science as the science of consciousness, and must boldly assert its claim to be the positive science of the mind in all its aspects and modes of functioning, or, as I would prefer to say, the positive science of conduct or behavior. (McDougall, 1908/1960, 13)

Such behavioral definitions themselves, however, were soon carried to an equally "sterile and narrow" extreme, culminating in the behaviorism of Watson (1924/1958).

How one defines psychology has important effects on the kinds of methods one chooses to use. Many of those

who believed psychology to be the study of consciousness relied either on the philosophical examination of the contents of consciousness or on the experimental techniques of introspection developed by Wundt and his followers. Those who believed that psychology should be primarily the study of neurological processes that are the foundation of mental life turned to physiology and the study of sensorimotor processes. Those who believed that psychology should be the study of objective behavior recognized, as Kant did, that science is limited to the study of observable phenomena, that is, behavior; but this then led some psychologists to the rather bizarre (even if logically consistent) conclusion that, since intention and consciousness are not observable, psychology can study only nonintentional, unconscious behavior (MacMurray, 1939, 217). As I pointed out in Chapter 2, scientific psychology raised important questions about the adequacy and completeness of present scientific methods, developed in response to problems of the physical sciences, when confronted with the new and often different problems of psychological phenomena. I repeat the succinct remark of the historian Brett, who said that "the central problem [in psychology] is the question of method" (Brett, 1921, 148). It follows that, since the method one adopts is so closely dependent on how one defines the problems to be addressed, then the definition of the field of psychology likewise becomes of central importance.

For Myers, the most fundamental fact about psychological processes is that they are psychophysiological -- that is, in some sense both mental and physical. The definition and aims of psychology should, therefore, reflect this basic fact about its phenomena. If, he believed, psychology is to move beyond merely describing what we observe or what we already know, more or less clearly, on the basis of our own experience, and if it is to become more than a sub-discipline of physiology, then the most fundamental problem in psychology is to develop methods for probing the exact nature and extent of those psychophysiological processes.

For Myers, therefore, the important work of psychology lay in going beyond what we can easily and commonly observe in human behavior and developing methods, or "artifices," for extending our observations of the contents and capacities of mind beyond the visible portion of the psychophysiological spectrum.

Myers emphasized repeatedly that, first of all, psychologists had to develop methods suitable to the particular problems and phenomena of psychology and, secondly, that all sciences must go through a developmental process in which their methods, initially crude and imperfect, are gradually improved and strengthened. In particular, any science which aims to study "the intimate constitution of man" -- that is, the nature of human personality and psychophysiological processes -- must develop unique methods that "are partly those of physiology and partly those of psychology" (1891e, 634-635). Psychology still "remains in that early stage...when the methods of experiment are such as other sciences have suggested, not such as this special branch of inquiry suggests for itself, or can use with unique effect" (1892g, 443). The methods successful in the physical sciences, however, are insufficient for psychology:

They help us rather to define accurately facts already roughly known, than to get at underlying facts of which common consciousness does not inform us. To do this we must pass from general mechanical artifices to artifices special to psychology.
(1892g, 443)

In particular, the physical sciences rely on observation of the physical world as it appears to our ordinary, waking consciousness and senses, and as our perception of it is extended by "mechanical artifices." If, in contrast, the goal is to extend our knowledge and understanding of psychophysiological phenomena, then methods must be found for bringing within the purview of ordinary consciousness psychological processes that usually fall outside or beyond it -- developing, in short, methods or "artifices" that extend our observation of psychological phenomena just as the physical sciences have developed artifices for extending our observation of

the physical world.

The apparent reluctance of psychologists to develop their own special methods reflected, Myers thought, their reluctance to put themselves back in the primitive methodological state where all sciences must begin and where they must return every time they attack new and different problems:

I allude to the ever-growing dislike felt by the votaries of advanced and established sciences to the rude approximate work which has been needed in the infancy of every science; and needed in greater degree as each new science involved a wider scope. (1894-1895, 191)

There was, he warned, "danger...for Experimental Psychology in the temptation to cling too exclusively to the safe methods of sciences exacter than ours can as yet in reality be." If psychologists "will make only such experiments as admit of precise numerical results," then the danger was that psychology will become "no more than a curious appendage to Neurology," rather than its own science, making its own real discoveries: "Men who insist on electric lamps along their road will never reach the centre of Africa" (1894-1895, 191).

The gap between the majority of psychologists and those involved in psychical research therefore increasingly grew to be one between those who preferred the safe, established, precise methods of other sciences and who narrowed the scope of their researches accordingly, and those who preferred to keep their sights set on fundamental problems, however inadequate the methods might so far be. In reviews of two issues of L'Année psychologique, published near the end of his life, Myers conveyed his deep disappointment with what he saw as the resulting superficiality and triviality of much of modern psychology. In one review he contrasted the safe "surface-mining" of most psychological researchers with the riskier "deep-level mining" of the psychical researchers (1898c). The second review was more blunt:

The subjects of research seem scarcely of sufficient importance to occupy for long the attention of scientific minds. The elaborate Bibliography... represents a great mass of intellectual effort, from which, perhaps, fewer leading ideas have in fact

emerged than might have been hoped in an age where really illuminating generalisations in science are wont to be so promptly pursued. (1900e, 106)

The reason for this triteness, he thought, lay in the overwhelming tendency of many psychologists "to treat the easy parts of the subject...and to ignore altogether those difficult parts," with the result that the research does little more than re-affirm the "obvious common-sense" and thus commonplace view, and brings no real advance in knowledge (1900e, 106). The psychical researchers, in contrast, attempted to push beyond the commonplace and treat the difficult parts, the inevitable result of this approach being that they "must make many mistakes" (1895g, 233).

Myers summarized the two approaches to psychology as follows:

First come the many new Professors and Lecturers in Germany, France, America, and elsewhere who are making accurate experiments on everything in man which they can manage to get at; -- the nervous system in general, vision, audition, orientation, tactile sensibility, reaction-times, fatigue, attention, memory, mental imagery, -- with a host of cognate inquiries. Much of this is delicate quantitative work, and is performed with instruments of precision. The drawback is that such methods and such apparatus are better adapted to give accuracy to facts already roughly known than to carry the inquirer much farther into the depths of our being. It is work preparatory to discovery, rather than discovery itself.

At the other end of the range a group still small...is attacking psychological problems of the highest importance, but which admit as yet of only approximate and tentative methods of inquiry. This is work of discovery indeed; but it is rough pioneer's work -- preparatory also in its own way to the ultimate science to which we all aspire (ibid.)

Both approaches, he urged, are necessary, and both have serious drawbacks. The real problem comes when the two sides fail to cooperate and "work with little connection" (ibid.). Thus, for example, he chided Binet for failing to note work that psychical researchers had done that was pertinent to his own research (1900e); but he similarly reminded psychical researchers "that we are no isolated hunters" (1895g, 233).

Myers thus believed that the first and most important

consideration when developing methods for a new science is to make those methods as broad and inclusive as possible. The ultimate goal of any science is to arrive at an explanation of a phenomenon sufficient to allow one to predict and produce that phenomenon (1880/1888, 56). All sciences, however, must pass through two other major methodological stages before reaching that most advanced stage. While discussing research on the physiological effects of suggestion, Myers noted that phenomena under scientific observation go through three stages: "First, they will occur spontaneously. Next, they will be empirically produced. And lastly they will be produced scientifically; produced, that is to say, with real knowledge of the conditions on which they depend" (1892d, 333). Psychological researchers and others attempting to push psychology beyond the commonplace and toward "real discovery" were, he thought, "just entering" the second stage, that is, the early experimental stage "at which we can sometimes set the machinery going, but have no notion how it works" (*ibid.*). This second, or early experimental, stage was clearly in Myers's view an advance over the first stage of observing spontaneous events:

As I have often urged, the first discovery of an actual method of experiment -- however difficult and uncertain -- in such an enquiry as this brings it at once out of a region where we can never count on advance into a region where, if sufficient diligence be used, progress must in time follow. (1895h, 335)

Nevertheless, as long as one remains at this second stage, and has not yet progressed to the third stage of understanding fully how to produce the phenomena, then the observational method must continue in conjunction with the experimental work. It remains

important to take stock, so to say, of the whole range of spontaneous phenomena corresponding to the phenomena which we are endeavouring to produce. We shall thus learn how far we are likely to be able to go, and we may get hints as to the quickest line of progress. (1892d, 333)

As I discussed at length in Chapter 5, Myers's methodological approach, therefore, was above all a comparative one: comparing observations from widely differing conditions, places, or times; comparing spontaneous

phenomena and experimentally produced phenomena; comparing different hypotheses or perspectives. Furthermore, when one's purpose shifts from being primarily an evidential one to being primarily a theoretical one, one also needs to compare phenomena for which there is "overwhelming probability" that the explanation is supernormal to those for which there may be somewhat less, but still "sufficient" probability for such an explanation (1884-1885, 54; 1886d, 283). When one's purpose is to establish the existence of a phenomenon, "the best-attested instances" are most useful. When one's purpose is, on the other hand, to understand and explain the phenomenon, then one must examine a broader range of instances of the phenomenon to allow for the proper consideration of all hypotheses, including those "discordant with our own" (1886b, lxviii-lxix). The comparative method, in short, is crucial to combat the partial, incomplete, and perhaps even misleading view one gets from looking at a limited kind or range of data and interpretations.

Perhaps the most important comparison of all, however, was the one that Myers believed would get to the heart of the question of psychophysiological concomitance, and that was to compare phenomena in which physiological or physical factors seem to be the causative factor and apparently similar phenomena in which mental or psychological factors seem to be the causative factor. Similar effects are not always indications of similar causes. As I mentioned in Chapter 6, Myers observed that phenomena associated with aphasia or agraphia are often similar to those associated with automatic writing (or other such automatism), and he conjectured that the similarities arose because the linguistically inexperienced right hemisphere has replaced the left hemisphere in certain functions. The cause of the inhibition of the left hemisphere, however, seemed to be different in the two situations. In one situation, neurological damage was clearly the cause; in the other, since the automatist could more or less control the onset and duration of the automatic writing (or other automatism), the initiating cause seemed to be men-

tal and not physiological. Likewise, Myers noted that certain physiological effects -- such as a blister -- could be produced physiologically by damage to the body, spontaneously in cases of stigmata or trance, psychopathologically in cases of hysteria, or experimentally by hypnosis. Conversely, similar psychological effects could also arise in apparently widely differing physiological conditions. An hallucination, for example, might be induced by physical illness, drugs, or alcohol; one might occur spontaneously, as in the veridical or crisis apparitions reported throughout history and studied extensively by Myers and his colleagues; and hallucinations could be induced experimentally, such as by hypnotic suggestion or crystal-gazing. In all such situations, the important task for psychologists was to compare phenomenologically similar events occurring in physiologically or physically different conditions. In this way, he believed, psychologists could learn more about the extent to which mind is an active, initiating cause of physical events, and thus they might begin to clarify the problem of the relationship of volitional mental activity and apparently mechanical physical activity.

All of the lines of research that Myers urged psychologists to pursue involved, in one way or another, the study of what he called "automatisms." The most important psychological fact for Myers was that "our normal consciousness...represent[s] only a fragment of the activity going on in our brains" (1891e, 636). Any method that could extend our knowledge of psychological processes beyond our normal consciousness would therefore have profound implications for our understanding of the relation between mind and brain. But for psychologists to develop such methods would also require great ingenuity, since pushing beyond the limits of consciousness meant, in essence, pushing beyond the parameters of knowledge that Nature has fitted our minds for:

There is no obvious reason why we should not, by suitable inquiry, bring the bulk of these hidden [subliminal] processes under the cognisance of the empirical [supraliminal] inquiring self. But we

must remember that in such a quest we must not trust to Nature's aid. Nature is propagandist, not scientific; she has fitted us out to use her hidden processes for our own and our kind's preservation, not to pry into and understand them with mere knowledge as our end and aim. If, therefore, we wish to know as well as to be, we must everywhere replace instinct and sensation by artifice and inference. By artifice and inference our field of consciousness may be extended as widely as by instrument and calculation we have extended our field of vision. (1891d, 122-123)

Myers's definition of "automatisms" therefore was quite different from the meaning we generally attach to "automatic" or "reflex" functioning (1889a, 523). The class of automatisms included any phenomenon that is not consciously originated; but it encompassed far more than unconscious physiological reflexes. On the analogy of the spectrum of consciousness, an automatism was any form of communication or exchange of information between different segments of the spectrum, that is, between the subliminal and supraliminal regions¹. Myers noted in particular two important, defining characteristics of automatisms. First, they apparently occur independently of any pathological physiological condition of the automatist, and secondly, they are "message-bearing or nunciative" (1889a, 523).

Moreover, automatisms may take a wide variety of forms. Like other forms of communication, they may take sensory forms as well as motor forms (1887a, 130). Thus, Myers suggested, such phenomena as dreams, hallucinations, automatic writing, table-tilting, hypnotic states, hysteria, or genius are all forms of automatisms in the sense that they are all conditions that have opened up channels of communication between one part of the Self and another (1887a; 1889a; 1889g, 192-193). Hallucinations belonged to the class of automatisms that Myers called sensory or "passive" automatisms; automatic writing belonged to the class of motor or "active" automatisms. But despite their differences in outward form, "they are fundamentally the same phenomenon" (1887a; 1889a). Psychologically speaking, the form that an automatism took was of secondary importance. As I

mentioned in Chapter 6, Myers believed that the psychological mechanism behind different phenomena might be the same, even if the phenomenological characteristics -- determined by some proclivity, or "line of least resistance," in the nervous system -- were different (1888c, 394-395). What was of primary importance was the psychological mechanism, or the process of communication between the supraliminal and subliminal strata of personality.

What was also of primary importance, Myers emphasized, was the content of the "message." An important question was whether automatisms were confined to the supraliminal and subliminal strata of one individual, or whether they might also derive from an external source. Most automatisms, Myers thought, do "originate within the automatist's own personality," but when the information conveyed is "veridical" -- that is, when it "correspond[s] with objective facts not normally within the purview" of the automatist -- then the automatism seems to have been conveyed from a stratum of one individual's mind to a stratum of another individual's mind. Nevertheless, it was only by an evaluation of the content of the "messages" that the probable source could be conjectured.

Myers particularly emphasized the importance of evaluating the content of automatisms to those people (such as many Spiritualists) who were inclined to assume that all automatisms come from a source external to the automatist. Because an automatism, by definition, comes from outside the automatist's conscious awareness, it seems to him or her to have come from an external source, when in reality it has come from another part of the automatist's own mind. On the other hand, Myers's emphasis on evaluating the content was also directed at those who assumed that an automatism could never originate outside the automatist's own mind. Again, only an analysis of the content of an automatism -- not its form or the automatist's subjective feelings -- could determine the actual source.

Spontaneous Case and Field Studies

As I pointed out earlier, Myers believed that, until a science had reached the stage where it could produce phenomena with real understanding of the necessary conditions involved, then experimental work must proceed arm-in-arm with the study of spontaneously occurring phenomena, even though (as he fully recognized) spontaneous cases were, scientifically speaking, of "lower rank" than experimental studies (Barrett, Gurney, & Myers, 1882, 30; Myers, 1892d, 333). Psychical research in particular was "at present very much in the position which zoology and botany occupied in the time of Aristotle, or nosology in the time of Hippocrates" -- the stage, which all sciences go through, when the phenomena are "to a large extent irreproducible" and must therefore be studied by observing them wherever and whenever they can be found (Barrett, Massey, Moses, et al., 1883, 149).

Dreams

The most frequently recurring state of subliminal consciousness is sleep, and Myers therefore believed that the study of sleep and dreams should occupy a prominent position in psychological research. A form of hallucination, dreams are by far the commonest occurrences of sensory automatism. Even though the "message" conveyed may be "nonsensical" in terms of ordinary waking functioning, dreams are nevertheless vehicles by which information is passed from the subliminal to the supraliminal self, and they are particularly important to study because they are, evidently, the "easiest method of communication" between different portions of personality (1889a, 535; 1903, 2:524).

I have already discussed in Chapter 6 Myers's belief that the study of sleep and dreams would be an important source of knowledge about subliminal processes and how they resemble or (more importantly) differ from the supraliminal ones with which we are familiar. Dreams, being so frequent, numerous, and readily available for

study, could, for example, begin to familiarize psychologists with the particular symbolical, apparently nonverbal language of the subliminal. Myers also believed that dreams could teach us much about individual psychological modes of functioning, such as Galton's suggestion that in some people visual mental processes are dominant, in others auditory processes are dominant, and in still others motor processes are dominant. Although most dreams have diverse elements, Myers hypothesized that, in dreams as well as in other subliminal processes, the individual's readiest psychological "path of externalisation," or mode of functioning, would predominate (1889a, 535-537). Analyses of dream content, in other words, could begin to show whether, or to what extent, an individual's mental processes are predominantly (say) visual, auditory, or motor.

Myers also believed that the study of sleep and dreams could provide knowledge about the evolution of consciousness, since sleep in his theory is a reversion to an earlier stage of consciousness. Here again he emphasized the importance of not neglecting the uncommon phenomena: For psychology, "as for other sciences, it is the anomalies, the residual phenomena, which open out fresh paths of discovery" (1892g, 444). Thus, he called attention to a rare and little-known phenomenon that might provide insight into the evolution of consciousness, namely, hysterical attaques de sommeil, in which the subject sleeps abnormally much, and, conversely, reports in the medical (as well as religious²) literature of persons who sleep abnormally little (1892f, 364-365). Such cases, he thought, might be evidence of, on the one hand, dissolution of consciousness to a state of prolonged sleep and, on the other, evolution to a state of increased vigilance or wakefulness.

Most importantly, however, the study of sleep and dreams could provide information about enhanced or even new psychological processes occurring in subliminal functioning (1892f; 1903, Ch. 4). First of all, he suggested, phenomena of sleep and dreams indicate a latent capacity for heightened sensory perception -- an

apparently paradoxical observation, given that sleep is usually thought of as an abeyance of sensory functioning. Nevertheless, in the latter part of the 19th century, scientists such as Baillarger, Griesinger, Maury, Galton, and others had begun to study hypnagogic illusions, the vivid sensory images -- usually visual or auditory -- that often occur in the state of falling asleep. Gurney and Myers pointed out that such images may also occur in the state just before awakening, and Myers labelled these "hypnopompic" images (Gurney, Myers, & Podmore, 1886, 1:390; Myers, 1892c, 314; Myers, 1892f, 369-373). Dreams themselves also provided evidence of heightened sensory capacity, being for many people "the highest point" that their visualizing faculty reaches (1892f, 370). Perception of sound may also be enhanced in dreams (1892f, 370-371). The importance of observing and recording (and even attempting to induce) such phenomena, however trivial and "meaningless" they may appear, was that they seemed to be an "indication of intensified capacity" of sensory functioning in a subliminal state, beyond normal waking capacity (1892c, 315).

The study of dreams might also provide insight into processes of creativity and genius. Dreams are above all else a generation or creation of imagery, but in most people they also indicate a dramatization or role-playing capacity far greater than normal (1892f, 371). In addition, in some dreams cognitive or problem-solving processes seemed to have been enhanced (1892f, 392-397; 1903, 1:134-135, 372-379). Thus, in addition to creative processes in the dreams of ordinary people, the contribution of dreams to the creativity and genius of artists and scientists seemed to Myers an important topic of psychological study.

Another cognitive function that seemed to be enhanced in dreams was memory. As I mentioned in Chapter 6, Myers believed that memory in subliminal processes such as dreams was the widest memory, even if not the most complete or reasoned (1903, 1:129). The study of hypermnesia in dreams -- including the memory of events once known but now forgotten, as well as events perceived with

the normal senses but never consciously perceived -- was of interest in showing not only that memory extends beyond our supraliminal range, but also that sensory perception does so as well. Moreover, Myers believed that the study of memory in dreams would reveal an underlying continuity of memory between the dream state and other subliminal states of consciousness and, thus, provide further evidence for Myers's hypothesis of a fundamental unity of human personality behind its multiple and often seemingly disparate manifestations (1892f, 378-379; 1903, 1:128-134, 370-372).

Another phenomenon that Myers thought would provide interesting evidence for enhanced capacities in subliminal states of consciousness was the effect that dreams could have on the waking state. In this connection he noted the similarity between dreams and post-hypnotic suggestions (1892f, 373-374). Dreams could, for example, mark the onset of a religious experience, an hysterical fixed idea, or even insanity; or they could generate self-suggestions apparently strong enough to lead to healing, pain, stigmata, or even death (1892f, 373-377; 1903, 1:126-128, 369-370). These latter effects were particularly important to study, he thought, because they provided evidence that a person's subliminal consciousness could influence physiological processes to an extent far beyond his or her conscious control.

The most extreme enhancement of functioning in dreams, however, occurred in those cases in which the dreamer seemed to have acquired information through some new, or supernormal, mode of perception, a mode of perception that seemed to be both more generalized and more far-reaching than sensory perception. In some dreams, in other words, the dreamer may show telepathic, telaesthetic (clairvoyant), or precognitive awareness of external phenomena (1903, 1:135-150, 379-436). Because this apparent new mode of perception is, like all other modes of perception, emergent from the general sensitivity, or panaesthesia of the individual's consciousness, there may be, Myers cautioned, no fixed line separating dreams deriving from normal sensory and cogni-

tive processes, from hyperaesthesia or hypermnesia, and from supernormal functioning. As with other forms of subliminal functioning, only an examination of the content of the dream could determine its possible derivation. Nevertheless, Myers also suggested studying, as one possible feature in dreams distinguishing normal, enhanced normal, and supernormal functioning, the qualitative intensity of the dream. He conjectured that dreams which seemed particularly vivid or otherwise impressive to the dreamer -- and especially dreams that led the dreamer to take some action once he or she awoke -- might more often be those which later appear to have been supernormal (1892f, 366-367).

Although dreams, by their very nature, are for the most part limited to being studied when they occur spontaneously, Myers nevertheless believed that they could occasionally be brought under some means of experimental control:

I have long thought that we are too indolent in regard to our dreams; that we neglect precious occasions of experiment for want of a little resolute direction of the will....[W]e ought to accustom ourselves to look on each dream, not only as a psychological observation, but as an experiment. We should constantly represent to ourselves what points we should like to notice and test in dreams; and then when going to sleep we should impress upon our minds that we are going to try an experiment; -- that we are going to carry into our dreams enough of our waking [supraliminal] self to tell us that they are dreams, and to prompt us to psychological inquiry. (1887b, 241)

What he was proposing was the study of what we now call lucid dreams. He put himself to the task, even though he knew that he was both a poor dreamer (1887b, 241) and a poor visualizer (1892f, 370); and, perhaps predictably, he succeeded only three nights out of nearly 3,000 on which he tried (1887b, 241). Nevertheless, because, "as dreamers, we are very unequally gifted by nature" (*ibid.*), he expected that others might be successful frequently enough to make such research useful; and research begun in recent years would seem to support that expectation (Green, 1968; LaBerge, 1985). He also referred to a

"Chapter on Dreams" in which Robert Louis Stevenson described his own practice of self-suggestion before sleep, and its success in stimulating his creative processes. In calling attention to these "most successful dream-experiments thus far recorded," Myers hoped to encourage others to undertake experiments in suggestion (or self-suggestion) in dreams (1892f, 371).

Hysteria

Hysteria was another phenomenon that could only be studied where and when it is found occurring spontaneously, but in which observations of spontaneously occurring symptoms could be extended somewhat by experimental manipulations. I have already explained in Chapter 6 why Myers believed the study of hysteria could make an important contribution, not just to clinical medicine, but also to theoretical psychology. Myers emphasized "how significant are the phenomena of hysteria in any psychological scheme which aims at including the hidden powers of man" (1903, 1:67). The hysteric, he said, possesses no capacity that is not latent in all human beings, and studying the malfunctioning or disintegration of the hysteric personality could teach psychologists much about the functioning and integration of the normal personality (1886c, 655-656; 1889c, 200; 1903, 1:35). Hysteria, Myers believed, provided "a better dissecting agent than any other where delicate psychical dissociations are concerned" (1903, 1:65) -- rivalled in this only by hypnosis. Moreover, studying not just the losses of function, but particularly the gains demonstrated by hysterics could reveal much about latent psychological capacities (1886c, 654-655; 1897, 56; 1903, 1:66-69). In particular, hysterics could show increases as well as decreases in attention, in control over sensory and motor processes, and in memory (1903, 1:67).

Myers thought that changes in sensation in hysterics would be a particularly important area of study. Janet, Binet, Féré, and others had studied anaesthesia, hysterical blindness, and other losses of sensation in hysterics (see, e.g., Binet, 1890; Binet & Féré, 1888 ; Janet,

1893/1901, 1907/1920), and Myers (as I mentioned in Chapter 6) thought that the study of such phenomena would prove "one of the most fertile sources of new knowledge of body and mind" (1903, 1:43). Such phenomena were primarily intellectual or psychological in origin and character, not organic or anatomical (1893d, 5-6; 1897, 53-55; 1903, 1:45-46). As such, therefore, they were not simply the losses of sensory capacity that they appeared to be. They were also -- and more importantly to psychologists -- evidence for a control over physiological processes, latent in the subliminal consciousness of the individual and beyond the evolved capacity of the supraliminal consciousness, which not only occurred spontaneously in hysterics, but could, it seemed, be manipulated experimentally to some extent.

As one example of experimental manipulation of hysterical symptoms, Myers described some experiments of Babinski, Binet, and Féré, including some that he himself had observed and assisted in (1886h). In these experiments with hysterics at the Salpêtrière, the experimenters had succeeded in transferring hysterical symptoms, including anaesthesias, from one part of the body to another, or even from one patient to another, by using magnets. The Salpêtrière scientists assumed that the cause was a physical one. Binet and Féré, for example, "urge that the transferences effected are anatomically too exact to be effected by a mere suggestion working itself out in the patient's mind" (1886h, 446). Furthermore, the Salpêtrière scientists had assumed that a deeply hypnotized hysteric was unaware of anything going on around her. As a result, they had taken few precautions to rule out suggestion. Myers, in contrast, believed that hypnosis did not eradicate, but simply relocated, the subject's awareness, and that the subject's subliminal consciousness could direct the nervous system to carry out the suggestion as completely as possible. He suggested, therefore, that the Salpêtrière experiments had demonstrated, not the physical effect of magnets on the body, but what he considered the much more significant phenomenon of latent mental control over

one's own physiological processes.

In addition to providing information about the interaction of psychological and physiological phenomena, hysteria could also, Myers thought, contribute to a theoretical understanding of the nature of mind. Myers's theory of mind suggested that waking consciousness was a segment of a larger consciousness that had emerged from that larger consciousness through the evolutionary process of adaptation to environmental demands. On this theory, hysteria was simply, in his theory, a more extreme example of the normal adaptive processes by which psychological elements are filtered out of supraliminal awareness but nonetheless remain latent in subliminal consciousness. Sensory processes were not destroyed in an hysteric, as they are when an organic injury occurs; they are submerged. Myers therefore predicted that experiments on hysterics would show that, at some level of consciousness, hysterics retained sensations and memories that they seemed to have lost -- as in fact experiments such as Binet, Pierre Janet, and Jules Janet were conducting were showing (Myers, 1889c, 201-204; 1889e, 217-219; 1893d, 16-22; 1903, Ch. 2). Myers called attention, for example, to Pierre Janet's observation of "how rare a thing it was that any accident or injury followed upon hysterical loss of feeling in the limbs" (1903, 1:47). Some deeper level of personality, it would seem, retained awareness and maintained some subliminal supervision over the individual's functioning.³ Janet's experiments using a dynamometer showed that, although a hysteric might have lost the ability to carry out a motor task when her attention was directed to it, she actually retained the capacity at a subliminal level (1893d, 21-22). Myers encouraged all such experiments -- using not only suggestion and hypnotism but also automatism such as automatic writing -- to determine how deep the hysterical losses of sensation and memory really go and to what extent subliminal awareness of "lost" areas of consciousness might still be influencing supraliminal functioning. Such experiments, if pursued far enough, would, he believed, demonstrate an underlying unity and continuity to the

hysteric's supraliminally dissociated personality.

Stigmata

There were other spontaneously occurring phenomena that Myers considered important for psychologists to study for an increased understanding of the relation between mental and physiological processes. The religious literature was full of reports of saints and other persons on whom marks corresponding to the wounds of Christ appeared periodically or in states of meditation or prayer (Stevenson, in press; Thurston, 1952).⁴ Instead of being "either fraudulent or miraculous," as it had long been assumed to be, stigmatization was, Myers thought, an instructive example of "subliminal responses to self-suggestion" (1903, 1:492). Regardless of whether the phenomena occurred in a saint or in an hysteric, and regardless of whether the suggestion was initiated by the subject or by someone else, the psychological mechanism was, he believed, the same. Such "suggested vesication" was a highly developed form of "vaso-motor plasticity" in which the subject showed a considerable (though usually latent and subliminal) capacity for mentally influencing physiological processes (1903, 1:188). These spontaneous psychophysiological phenomena were themselves important to study; but they also "suggested some experiments" that could be made with subjects who were found to be sufficiently responsive (1903, 1:188, 492-499). In such experiments, for example, a particular physiological reaction to a benign stimulus could be suggested and the results observed and documented.

Healing

Closely related to cases of stigmatization were the claims for so-called faith healing and mesmeric healing (Gurney & Myers, 1885; Myers & Myers, 1893). In addition to the anaesthetizing power of mesmerism, reported by Esdaile, Elliotson, and others in the mid-19th century, there had also been reports that the mesmeric state could lead to spontaneous healing or recovery from disease. And "miraculous" cures had long been associated with par-

ticular objects (such as the relics of a saint), particular persons (such as Jesus or Mary), or particular places (such as Lourdes). Gurney, Myers, and Myers's brother Dr. A. T. Myers were quick to point out the extremely poor quality of the evidence for most such claims, particularly because of the disappointing lack of medical documentation and corroboration in the cases. Nevertheless, they also believed that the lack of adequate evidence did not invalidate all the claims entirely, and they urged that certain standards of documentation and validation be adopted so that the claims could be adequately assessed and either accepted or discarded in the future (Gurney & Myers, 1885, 405; Myers & Myers, 1893, 166-167). Moreover, they believed that most genuine cases of healing could be attributed to self-suggestion rather than to any external agency, as was then popularly believed (1903, 1:213). This conclusion did not, however, lessen the interest of the cases: Like cases of physiological effects in hysteria or cases of stigmata, cases of "faith" healing seemed to provide evidence for an unrecognized but sometimes potent psychological influence on physiological processes. Furthermore, it was also important for scientists to study such phenomena, since, when they ignore the phenomena, "charlatans step in and occupy the empty field" (Myers & Myers, 1893, 208). In contrast, if they will attend to them,

the hope is that that second, or psychological, element in all therapeutics, which has thus far been left to chance and wonder, while the physiological element has fallen under settled law, may itself also be gradually recognised as an orderly part of Nature. (Myers & Myers, 1893, 207)

Maternal Impressions

Myers also urged the study of a class of spontaneous cases that might be considered transitional between self-suggestion (or influence of one's own mind on one's own body) and external suggestion (or the influence of one person's mind on another person's body). These are the so-called maternal impression cases, or the apparent

effects of a mental state of a pregnant woman on the developing embryo. (For an extensive review of such cases, particularly those reported in the medical literature, see Stevenson, in press.) Myers believed that

there is evidence enough...to show that isolated and momentary suggestions -- as the sight of a crushed ankle or missing finger -- may produce a definite localised effect on the embryo in much the same way as a hypnotic suggestion may produce a localised congestion or secretion. (1895h, 349; 1903, 1:455)

As in stigmata cases, the mechanism causing such maternal impression cases remains totally unexplained, and Myers strongly urged that they be studied: "Few subjects stand more in need of statistical and experimental investigation" (1892d, 335n).

This latter statement indicated that Myers believed that the study of maternal impressions could be extended to include experimental conditions. Just as he had noted that stigmatization could be studied experimentally by suggesting, to appropriate subjects, harmless and painless marks on the skin (1903, 1:495-496), he called attention to Liébeault's proposal that scientists "suggest to pregnant women marks of a definite but harmless kind, with the view of obtaining direct experimental proof of a pre-natal influence" (1892d, 335n).⁵

Death-Bed Visions and Near-Death Experiences

Other types of spontaneous phenomena that Myers thought important to study were the experiences that people sometimes have when they are seriously ill or even near death; and he identified two primary reasons why such experiences should be of interest to psychologists. First of all, although people have long been interested in the last words of the dying and the possibility that a dying person might reveal something of what lies before him or her, Myers thought that the altered state of consciousness of a dying person might be a conducive condition for stimulating the person's subliminal capacity for supernormal perception of more mundane events: "Nothing, perhaps, has been so little looked for at death-beds as the special indications...not of a first perception of

another world, but of a last of this" (1886d, 304; see also 1889f, 24). He cited some examples, but suggested that the examples might improve both in quantity and quality if people's attention could be directed to the phenomenon.

Myers also urged that the study of states of consciousness during periods of extreme illness or even coma might contribute to an understanding of mind-brain relations. He pointed out that there was

a small and imperfectly understood group of cases which seem to point to...the persistence...of consciousness under pathological conditions which would seem to negative its possibility.

If consciousness be a mere epiphenomenon... accompanying, but in no way guiding, certain molecular changes in the brain, we shall of course expect... that consciousness is exclusively linked with the functional disintegration of central nervous elements, and varies in its intensity with the rapidity or energy of that disintegration. And ordinary experience, at least within physiological limits, will support some view like this. Yet now and then we find a case where vivid consciousness has existed during a state of apparent coma...tranquilly and intelligently co-existing with an almost complete abeyance of ordinary vital function...Until this new field has been more fully worked -- until the traces of memory which may survive from comatose, ecstatic, syncopal conditions have been revived (by hypnotic suggestion or otherwise), and carefully compared, we have no right to make any absolute assertion as to the concomitant cerebral processes on which consciousness depends. (1891d, 116-117)

The frequency with which supernormal processes seemed to occur while either the percipient or the agent was asleep, dying, or in a state of ill health, coupled with the emergence of subliminal functioning in general during altered states of consciousness such as hypnosis, hysteria, or even ordinary distraction, led Myers to propose that, although supraliminal functioning usually reflects "the familiar parallelism between bodily and mental states", subliminal mental processes might vary "inversely, rather than directly, with the observable activity of the nervous system or of the conscious mind" (1890b, 320; 1891e, 638).

Hallucinations

Among the most important phenomena for psychologists to study, Myers believed, were hallucinations. Hallucinations might prove to be particularly instructive because they vividly demonstrate the fact that all modes of perception fall somewhere on a continuum between the (hypothetically) purely objective phenomenon and the (hypothetically) purely subjective phenomenon. Even sensory perception is not an entirely objective representation of external reality, but a mental construct; it "is in its own way highly symbolical" (1903, 1:277). Similarly, hallucinations -- especially the veridical variety that Myers, Gurney, and other psychical researchers studied -- "further...confound our already doubtful contrast between objective and subjective,...between 'real' and 'unreal' things" (1891d, 125). Hallucinations are an integral part of the general problem of the relationship between perception and reality, objective and subjective, or matter and mind, and thus the study of them, in conjunction with the study of perception in general, might ultimately lead to an understanding of psychological phenomena beyond the highly polarized positions of physicalism and dualism (1903, 1:276-277).

The study of hallucinations, then, had to be accompanied by attempts to understand the relationship of hallucinations to other modes of perception and imagery. Beginning with the assumption that all mental processes have developed from a primitive, indefinite, general sensitivity, Myers suggested that perception has developed along a continuum in two directions: toward externally generated percepts that are peripheral (or sensory) in origin, and toward internally generated percepts that are central (or cerebral) in origin. Taking visual perception as the primary example, Myers attempted to situate optical vision, after-images, memory, dreams, imagery, hallucinations, synaesthesia, and other perceptual phenomena on this continuum (1903, 1:224-231). Myers argued that psychologists ordinarily distinguish and segregate external and internal modes of perception by assuming that the external, peripheral, or sensory

modes are the only modes for receiving new information, whereas the internal, cerebral, or "mental" modes consist solely of the "recall and rearrangement" of old material (1892g, 439-440). Myers, however, believed that there was no such clear dividing line between external and internal percepts. Thus, some apparently internally generated percepts -- such as hallucinations or dreams -- might contain objective and new information that was nonetheless not optical (or sensory) in origin (1892g, 440).

Myers and Gurney had first suggested this scheme of perception in an 1884 paper on "A Theory of Apparitions" (Barrett, Massey, Moses, et al., 1884c). In an attempt to show that not all hallucinations are morbid ones (as psychologists assumed), but that morbid hallucinations were "merely a species in a larger genus" of hallucinations, Myers and Gurney attempted to fit hallucinations into a general scheme of perception (Barrett, Massey, Moses, et al., 1884c, 167-172). They acknowledged that their ideas were derived from then-current ideas about localization of brain functions, but they also thought that the general features of their scheme could remain valid even if the details of the theory of brain localization were later modified (Barrett, Massey, Moses, et al., 1884c, 168). According to Gurney and Myers, there were three main areas of the nervous system involved in, say, visual perception: the retina (A); the visual center of the brain (B), where all sensations of sight are generated; and cortical areas (C), where "mental" visualization such as memory or imagery occurs. A and B are connected by nerve fibers, and B and C are likewise connected. Any stimulation of B will result in the sensation of sight. According to Myers and Gurney, B can be stimulated either from the direction of A (resulting in optical vision) or from the direction of C (resulting in hallucination). Moreover, depending on the strength of the stimulus at either A or C, the response at B may be the same regardless of the nature of the stimulus. The stimulus at C is in essence an idea, but it can arise in a number of ways, whether voluntarily in

volitional attempts at visualization or involuntarily in dreams, hypnagogic or hypnopompic hallucinations, or spontaneous waking hallucinations. Moreover, C can also be stimulated by pathological, physiological conditions such as drugs or disease.

In short, the psychological mechanism for sensory perception and for hallucination is the same: a stimulation of the relevant brain center (B). What differs is the source of the stimulation; it can come either from a peripheral sensory receptor (A) or from a central, cerebral area (C).

In a similar fashion, Myers and Gurney differentiated purely morbid hallucinations, other subjective hallucinations, and veridical hallucinations. All arose from a nervous impulse from C to B. In morbid hallucinations, however, the nervous impulse originating at C was caused by some pathological physiological condition, such as drugs or disease. Other subjective hallucinations (such as hypnotically suggested ones) could occur when an idea became sufficiently intense to generate a nervous impulse to B; such subjective hallucinations were themselves of immense interest because they addressed again the problem of the relation of volition or other ideational processes and physiological processes. Finally, according to Myers and Gurney, there were also veridical hallucinations. These were not purely subjective because they corresponded to an external event; but they were also not optically originated, since the nervous impulse began at C, not at A. Myers conjectured, therefore, that veridical hallucinations arose from a mode of perception that was objective in some sense but not optical (1892g, 440-441). They were evidence for a mode of perception, developing out of the general sensitivity (panaesthesia) of the organism (as had optical perception), but a mode of perception that resulted in the stimulation of the cortical centers at C and not the retinal apparatus at A.

On this point, Myers thus carried his definition of hallucinations somewhat further than Gurney had. Gurney's definition had simply been that hallucinations are percepts lacking an objective basis (Gurney, Myers, &

Podmore, 1886, 1:459) -- a definition Myers considered "mainly...negative" (1892g, 441). Myers, in contrast, defined hallucinations as "phenomena of central or cerebral hyperaesthesia" (1903, 1:227), that is, perception with an objective basis but beginning in the perceiver not at the sensory receptors but in the cortex. His definition included "something more of positive" in it

if for hallucination we substitute 'sensory automatism'; thus implying not so much that the picture fails truly to represent the objects present to supraliminal vision [Gurney's definition], as that it aims at representing objects present to subliminal perception in some unknown way. (1892g, 441)

Most psychologists assumed that hallucinations were morbid, or pathological. Some psychologists were beginning also to recognize a non-morbid variety, but they assumed that these were purely subjective in origin, since they lacked any sensory source. Myers and Gurney further believed that even the non-morbid variety also took more than one form: Just as one had to distinguish morbid and non-morbid hallucinations, one had also to distinguish subjective and veridical ones.

In particular, throughout recorded history apparitions of deceased persons or living persons undergoing some crisis have been reported. Gurney and Myers quoted Samuel Johnson as saying that, "after five thousand years," the problem of the nature of such apparitions "is still undecided," even though it is "one of the most important [questions] that can come before the human understanding" (Barrett, Massey, Moses, et al., 1884b, 109). Even before the founding of the SPR, Myers had urged the importance of collecting and studying "the widely-spread accounts of apparitions seen at the moment of death, or even soon after death" (1881, 99); and a few years later the SPR, under Gurney's leadership, undertook just such a study.

In keeping with their general "tertium quid" approach to all questions, Gurney and Myers particularly hoped that this study would lead to some understanding of veridical hallucinations more satisfactory than "the two

equally crude views between which we steer -- that phantoms are all morbid nonsense, or that they are all 'spirits of the dead'" (Barrett, Massey, Moses, et al., 1884c, 164). To learn whether -- or to what extent -- hallucinations might be non-morbid as well as morbid, or objectively veridical as well as subjective, Gurney and Myers recognized that an empirical study was necessary. Specifically, the problem first had to be attacked "in the market-place, by the Method of Averages and by tables of statistics" -- in short, by a survey of hallucinations (Barrett, Massey, Moses, et al., 1884b, 113). Most scientists assumed that hallucinations are pathological in origin and that any coincidence between an hallucination and a real event was purely chance. To confirm or disprove these assumptions required "laborious quantitative work" to learn how frequently hallucinations of both the veridical variety and the subjective, non-coincident, or pathological variety occur (Barrett, Massey, Moses, et al., 1884a, 48-51; 1884b, 112-117). Comparing positive and negative responses in a large survey would, the psychical researchers believed, begin to answer questions about the kinds of hallucinations that occur, to whom they occur and how often, the conditions under which they occur, and whether or not chance coincidence is a reasonable explanation for the apparently veridical cases reported.⁶

In addition to research on the incidence and kind of hallucinations, Myers suggested other lines of research on hallucinations that he believed would contribute to an understanding of the nature of hallucinations and the psychophysiological processes involved in their generation. To understand further the extent to which an hallucination might be objective or subjective, it was important to learn more about the influence of the percipient's own mental processes on the hallucination. Even if an external event was the original, primary stimulus for the hallucination, an hallucination was presumably not different from any other perceptual process, in that the percipient's mind modifies the original stimulus such that the perception takes sym-

bolic, expected, or familiar forms (Barrett, Massey, Moses, et al., 1884c, 171-173). Hallucinations "are not mere crude externalisations....They are in most cases elaborate products -- complex images which must have needed intelligence to fashion them" (1903, 1:234). The question of how closely an hallucination or apparition corresponds with the percipient's prior beliefs or expectations is also important, especially since many of them seem not to do so, at least in certain respects. This finding would suggest some degree of objectivity for the hallucination's causal stimulus (1889f, 16). The sensory modality that the hallucination took was also an important feature to study (1884-1885), since it was likely that it (like other subliminal phenomena) would take the percipient's "readiest path of externalisation," or dominant mode of functioning.

Myers and his colleagues were particularly interested in whether hallucinations provided evidence for some mode of perception different from the sensory mode. Hallucinations fall on a continuum ranging from dreams to vague waking impressions to full-blown sensory hallucinations, and from the highly symbolic to the highly "objective," but in general they are all evidence for an unusual degree of visualization (or other imagery) (1892c, 314-317). To learn more about the extent to which this visualization derives from external -- that is, "objective" -- sources, Myers and his colleagues were particularly interested in hallucinations in which the content corresponded with a more or less contemporaneous external event. Such hallucinations, they found, frequently corresponded with the process of dying or some other crisis in the life of another person (1886b, lxiii). The first problem, of course, was to establish the actual veridicality of the hallucination: Did the events occur as reported? The next step was to determine the likelihood of the coincidence being a chance one. Dreams, for example, were "the most assailable part of our evidence," since they are the commonest form of hallucination. To qualify for classification as veridical, therefore, a dream had to have been written down or com-

municated to another person before the dreamer learned about the external event, and the dream must have corresponded with an unusual or unexpected event (Barrett, Massey, Moses, et al., 1883, 143). Likewise, another important question to address was how frequently a percipient experienced hallucinations -- whether the veridical one was a unique event in the percipient's experience, or whether hallucinations were a frequent occurrence (1884-1885, 116).

Another important source for learning about the generation of an hallucination was to examine, in veridical hallucinations, the relative contributions of both the percipient and the person who was the apparent subject of the hallucination (the so-called agent). Myers warned against "the error of attributing too much importance to the person who sees the phantom, because his account of the matter is the only one which we can [or do] get" (1886d, 301).⁷ Myers thought that the state of consciousness at the time of the experience, of both the percipient and the agent, would be important for learning about the psychophysiological conditions in which a sensory automatism (or subliminal communication) might occur. In particular, he tried to classify cases on the basis of whether the percipient or the agent was awake, asleep, in an altered or trance state, ill, or dying (Barrett, Massey, Moses, et al., 1883; Myers, 1884-1885). Another important question was the prior relationship between the two people (1884-1885). This question derived from Myers's belief (which I described in Chapter 6) that supernormal modes of communication derived from some kind of psychological link, or "rapport," between individuals, a link that seemed to be more complex, more subtle, or otherwise different from ostensible links of affection or intimacy (1884-1885, 100, 122).

Another area to examine was the difference in features of morbid (or subjective) and veridical hallucinations, by making a "complete record" of the phenomena associated with them (1890b, 331). Although the sporadic, sudden, and so far unpredictable occurrence of veridical hallucinations made them difficult to study

(Barrett, Massey, Moses, et al., 1883, 151), this characteristic might also prove an important one for distinguishing pathological and veridical hallucinations. Pathological hallucinations, Myers noted, seemed more persistent than veridical ones did (1884-1885, 161). They were also more durable and repetitious (Barrett, Massey, Moses, et al., 1884c, 175). Furthermore, in pathological hallucinations, the figure seen was usually a stranger or other unrecognized figure⁸, whereas in veridical cases the apparition was most often recognized (Barrett, Massey, Moses, et al., 1884c, 176).

The hallucinations that Myers believed to be the most important to study were undoubtedly the collective ones, in which more than one person claimed to have perceived the apparition simultaneously. These cases raised in particularly acute form the problem of the subjectivity versus the objectivity of the hallucination (1890a). They also complicated the task of finding an adequate explanation for the generation and nature of hallucinations (see especially 1886d; 1886f; 1890b; 1898a). It was over the interpretation of collective hallucinations that Myers parted company somewhat with his colleagues Gurney and Frank Podmore, who believed that all veridical hallucinations should provisionally be explained as the result of a telepathic impression from the agent to the percipient. On this hypothesis, collective hallucinations, had to be the result of a further telepathic transfer from the primary percipient to bystanders. Myers disagreed and believed that collective hallucinations suggested that the mechanism was some more general mode of perceptivity of which telepathy was only one kind.

Myers's hypothesis of veridical hallucinations, which he called a hypothesis of "phantasmogenetic efficacy," contained two major elements. First, he believed that veridical cases could be explained better, not as a one-way transfer of information from one person to another, but as a reciprocal interaction set in motion by the "rapport" or psychological link⁹ between the two people. Second, his hypothesis was not solely a "mental" one, but

was a psychophysical one in that it was also spatial. Myers hypothesized that the psychological "rapport" between two people somehow drew subliminal elements of the agent's personality to the spatial location of the (or one of the) percipients, where those subliminal elements then somehow "modif[ied]...an actual point in space" -- not in a material way perceptible to ordinary senses, but nonetheless in some manner sufficient to stimulate perception by subliminal elements of the percipients' minds (1898a, 323-324). His hypothesis was, in short, a spatial one without being a sensory one: "The conception of a phantasmogenetic centre, then, involves something which transcends the special forms of the senses, but which does not transcend or nullify space" (1898a, 325). Because there are many natural phenomena that our senses cannot directly detect, there may also be "some intermediate view" reconciling the objective and the subjective ways of conceiving apparitions (1886d, 290, 314). The study of hallucinations, and particularly collective ones, was important because it inescapably confronted psychologists with "this perplexing problem of the relation of psychical operations to space," and Myers's hypothesis of phantasmogenetic agency was an effort toward that intermediate view (1886d, 314, 302).

Experimental Studies

The ultimate goal of every science is to predict or even produce relevant phenomena. As I mentioned earlier in this chapter, Myers emphasized that the development of experimental methods suitable to its own special problems was the main task facing scientific psychology.¹⁰ Psychology, he said, was just entering the early experimental stage, in which phenomena are produced empirically rather than scientifically -- that is, with little or no understanding of how they are produced and not yet with "real knowledge of the conditions on which they depend" (1892d, 333). He also emphasized that psychological experiment must extend our view beyond the limits of our conscious, or supraliminal, awareness if it is to do more

than further elaborate on "facts already roughly known" (1892g, 443). Since subliminal psychological processes, however, by definition occur outside our conscious awareness, bringing them under some sort of experimental observation or control presents a major challenge to psychologists.

Myers identified three kinds of experimental methods that he thought would be of importance to psychologists if they wished to study in depth -- and experimentally -- the nature and extent of mental processes. These three classes of methods were hypnotism or mesmerism; experimental techniques for inducing sensory automatism, such as crystal-gazing and shell-hearing¹¹; and experimental techniques for inducing motor automatisms, such as automatic writing, automatic speech (that is, trance or so-called mediumistic states), and table-tilting or other unconscious movement of objects. These were the kinds of methods uniquely suited to learning more about the nature and particularly the extent of mental functioning that Myers thought psychologists had to develop if their field were to become an autonomous and fully developed science. Unfortunately, they were also all methods whose background lay in practices long associated with occultism or mysticism. Myers argued repeatedly that adopting and adapting these methods for scientific use did not necessarily entail adopting also the doctrines, beliefs, or interpretations that had previously accompanied them. As the history of hypnotism showed, however, most scientists found it difficult to accept the argument that the past uses to which an idea has been put should not limit the future uses to which it might be put. Thus, most psychologists rejected methods such as those suggested by Myers because they carried with them, not the blessing of the physical sciences, but the curse of occultism.

Mesmerism/Hypnotism

Gurney and Myers thought that it was a serious error, and "would be a grave retardation of science," for psychologists to assume that hypnosis is simply a "curiosity" (Gurney & Myers, 1885, 422). Myers believed

instead that, although "Mesmer himself was almost a charlatan" (1903, 1:157), the method that had developed from his discovery had been "the first really intimate, really penetrating method of psychological experiment" (1892g, 444). Hypnotism, Myers thought, could provide a "cornerstone of a valid experimental psychology" (Gurney & Myers, 1885, 422): "This view of hypnotism as above all things a method of psychological experiment (rather than as a mere physiological curiosity, or as a therapeutic agency), pervades all that Mr. Gurney and I have written on the subject" (1885d, 641n). The true psychological interest of hypnotism lies in its potential as "an experimental method of reaching the subliminal self" (1891b, 83). Since the goal of psychological science is, Myers thought, to extend our ordinary view of consciousness just as physical science extends our ordinary view of matter, the true value of hypnotism lies in its use as a "means of artificial displacements of the psycho-physical threshold":

It lies in the fact that here is a psychical experiment on a larger scale than was ever possible before; that we have at length got hold of a handle which turns the mechanism of our being; that we have found a mode of shifting the threshold of consciousness...; that we have induced a change of personality which is not per se either evolutive or dissolutive, but seems a mere allotropic modification of the very elements of man...The hypnotic trance is an eclipse of the normal consciousness which can be repeated at will. (1886b, xlii-xliii)

As a psychological method, however, hypnosis was in its infancy. Thus far it had been used primarily in clinical therapy, but the question of the psychophysiological processes involved remained "quite unsolved," and its psychological (or theoretical) implications remained unexamined (1903, 1:22-23). The history of mesmerism and hypnotism had been a "confused and disjointed" one, with work not being adequately pursued or followed up on by successors (1903, 1:158). There had been no more than "a mere beginning in some few of the many directions" necessary to take to establish both the potential and the limits of suggestion; and "if some of [the] phenomena have seldom been repeated since

the burst of novel interest when they were first observed, this by no means proves that they may not again recur if sufficiently sought for" (1903, 1:159). All of this, Myers thought, could explain the paradoxical contrast between the apparent potency of the hypnotic state and "the absurd ends" to which that power was so frequently put: The subliminal consciousness contained many latent abilities or capacities, only a very small fraction of which had begun to come under our supraliminal ability to elicit or control (1903, 1:158).

Hypnosis had also, Myers believed, too often been regarded from the perspective of the psychological functions lost rather than of those gained: "The prime value of the hypnotic trance lies not in what it inhibits, but in what it reveals; not in the occlusion of the avenues of peripheral stimulus, but in the emergence of unnoted sensibilities" (1886b, xliii). Cases of spontaneous somnambulism or personality changes had provided the first indications of such phenomena as hyperaesthesia or anaesthesia (although these first indications had long been ignored as "mere curiosities" -- an observation that led Myers to warn psychologists to take their spontaneous anomalies, or "residual phenomena," more seriously [1892g, 444]). Hypnosis with hysterics and other subjects had provided similar examples of increased subliminal control over organic or psychophysical processes. And the older mesmeric literature suggested that hypnosis might occasionally induce supernormal modes of perception. Finally, cases such as that of Ansel Bourne, in which William James and Richard Hodgson were able to resuscitate his secondary personality, A. J. Brown, with hypnosis (Hodgson, 1891), provided evidence of an underlying continuity to what otherwise appeared to be isolated, alternating selves. It was in directions such as these that Myers thought psychological experiments with hypnosis should go.

The importance of hypnosis as a psychological method, in short, was that with hypnosis, Myers thought, an experimenter could reproduce by artifice many abnormal spontaneous phenomena that provided evidence of the work-

ings of subliminal consciousness. The first step therefore was to see the relationship between hypnosis and other psychological phenomena -- "to bring these isolated phenomena of hypnotism into line with a number of other facts of human life" (1893c, 98). The oft-noted similarities between hypnosis and sleep, and between hypnosis and hysteria, provided a hint as to this relationship (1898b). Psychologically speaking, all were different forms of the abeyance of supraliminal functioning and the release of aspects of subliminal functioning. Like other types of subliminal functioning, hypnosis seemed important to Myers for two main reasons: First, it could provide new knowledge about latent capacities of subliminal consciousness. Second, it could provide new knowledge about the relationship of different aspects of consciousness to each other and, thus, lead to further insight on the problem of whether mind is a unity or a multiplicity. In much of the rest of this section, I will describe how Myers believed the study of hypnosis might increase knowledge both about the extent of mental functioning and about the nature of mind.

Hypnosis and Latent Capacities of Mind: As Myers often noted, hypnosis (like sleep and hysteria) was not simply the inhibition of certain processes, but it was also the stimulus for others (1903, 1:173). Perhaps one of the most striking characteristics of hypnosis was the subliminal control over certain physiological and psychophysiological processes that could be elicited in good hypnotic subjects. Localized or general anaesthesia had been observed in numerous hysterical patients, and French physicians at the Salpêtrière in particular had found that hypnotic suggestion could remove these hysterical anaesthesias. In contrast, Esdaile, Elliotson, and others had used hypnosis to induce anaesthesia. They had reported (e.g., Esdaile, 1853) numerous serious surgical procedures on patients who had been hypnotized and who, to all appearances, had felt no pain whatever. The discovery of chemical anaesthetics soon made the

surgical use of hypnosis unnecessary, but the effect remained totally unexplained: As Myers put it, the hypnotist's "command, 'Feel pain no more!' is no more a scientific instruction how not to feel pain than the prophet's 'Wash in Jordan and be clean!' was a pharmacopoeal prescription for leprosy" (1892d, 331-332).

Myers, Gurney, and their colleagues on the SPR's Committee on Mesmerism recognized the importance of these phenomena not only for therapeutics but also for an understanding of the interaction of physical and mental processes; and so they urged -- and conducted -- experiments on producing both analgesia and anaesthesia in hypnotized subjects. They found that they could produce both generalized anaesthesia (over the whole body) or anaesthesia confined to a specific part of the body (chosen by the experimenters), such that "pinching, pricking, burning, or strong electric shocks might be applied without producing the slightest protest or sign of pain" (Barrett, Gurney, Myers, et al., 1883a, 227)¹². They also found that occasionally analgesia would be produced, while the sense of touch remained (Barrett, Gurney, Myers, et al., 1883a, 228), and this phenomenon suggested to Myers the operation, not just of physiological processes, but of a subliminal intelligence or mind that could separate the sense of pain and the sense of touch: Just as the subliminal consciousness could differentiate and then control the specific nerves of physiological processes controlling sensation in, say, a localized patch on the arm, so the subliminal consciousness could differentiate the physiological elements involved in the sense of touch from those involved in the sense of pain (1891a, 170).

Some hypnotized subjects seemed able to exercise subliminal control over other physiological processes as well: "It is a striking characteristic of the hypnotic self that it can exercise over the nervous, the vasomotor, the circulatory systems a degree of control unparalleled in waking life" (1892c, 308). Suggested anaesthesia of a limb was often accompanied by rigidity of the limb (reminiscent of the contracture of limbs

observed in many hysteric patients). Yet the rigid limb could often be held "for an indefinite time in a state of painless contracture, and with no disturbance of pulse or respiration" (*ibid.*). Myers, Gurney, and their colleagues reported the case of one subject whose eyes could be made less sensitive to light, such that when a lighted candle was brought close to them, there was little blinking reflex and lessened contraction of the pupils (Barrett, Gurney, Myers, et al., 1883a, 228). Myers briefly reviewed experiments of French and other researchers who had been successful with hypnotic suggestion in increasing and decreasing body temperature, slowing the pulse, arresting and restoring secretions, and inducing edema and swelling (1892d, 336-337). Perhaps recalling cases in which people had dreams that suggested they may have been subliminally aware of their own internal organic condition (see, e.g., 1895i, 427-429), Myers also suggested hypnotic experiments "to see how far the viscera could take up, so to say, a suggestion to feel the action of a drug of whose nature the subject himself was not aware" (1887c, 538).

Other, more subjective physiological effects could be produced, such as convincing a hypnotized subject to eat a candle, thinking it was cake; to eat salt, thinking it was sugar, and to reject sugar, thinking it was cayenne pepper; or to drink vinegar, thinking it was cream (Barrett, Gurney, Myers, et al., 1883a, 222-223). Rather more objective effects were produced when the experimenters blew white pepper up the subject's nostrils, telling him that it was instead a flower; the subject did not sneeze, nor did his eyes water "to any appreciable extent" (*ibid.*) In contrast, when he was given salt and told that it was snuff, he "sneezed violently, with the characteristic spasm" (*ibid.*). Similarly, Liébeault and Liégeois convinced a subject that a bottle of ammonia was in fact cologne, and she smelled it with no adverse reaction (1888c, 384).

Among the most interesting studies were those in which hypnotic suggestion resulted in effects similar to the spontaneous stigmata cases. By hypnotic suggestion

to the hysterical patient Louis V., French physicians had been successful in producing nose-bleeding and redness and bleeding along lines traced on his arm (1886e, 166-167). Beaunis and Liébeault had similarly produced marks on the skin of one hypnotized subject; Myers and Gurney observed some of these effects (1886e, 167n-168n). Charcot, Bernheim, and other scientists had also reported the hypnotic production (or cessation) of redness, swelling, suppurating blisters, or bleeding of the skin and nosebleeding (1892d, 337-338; see also 1903, 1:187-188, 490-499). Some researchers had produced even more specific effects, such as the marks of a cross on the skin (1892d, 339-344).

Notwithstanding such reports, Maudsley for one apparently thought that there had been no reliable observations of this sort (as reported by Myers, 1886e, 169n-170n). In contrast, only a few years later, Wundt did admit that such effects had occasionally been produced, but attributed them to "the purely physiological effect of suggestion,...in general easily explicable...by the known vaso-motor and secretory functions of the nerves" (translated and quoted by Myers, 1893c, 98). Myers, however, recognized that such psychophysiological effects had in no way been explained (much less "easily"). Like the hypnotic production of anaesthesia or analgesia, the hypnotic production of bleeding and blistering was no better understood than "the prophet's 'Wash in Jordan and be clean!'" Myers suggested that this subliminal control of physiological processes might be related to the regenerative capacities of some lower biological organisms (such as those that can reproduce lost parts). These capacities may have been lost in more highly evolved animals: "In man and the higher animals an increase in the power of modifying the action of the organism as a whole has apparently been purchased by a decrease in the power of modifying its internal parts or constituent elements" (1892d, 345-347). Nevertheless, the "comparative fixity of the organism of the higher mammalia ...[may be] more apparent than real," and under conditions such as hypnosis the subliminal operation of

these processes may be revived to some extent (ibid.). Whatever the explanation, however, clearly much more experimentation and research was mandatory before any real understanding of the phenomena could be claimed.

Another psychophysiological phenomenon equally unexplained -- and of particular interest to Myers -- was the effect of hypnotic suggestion on perception, especially the production of positive hallucinations (to perceive some object that was not there) and the so-called negative hallucinations (not to perceive some object that was present) (Barrett, Gurney, Hodgson, et al., 1883, 22-23; Myers, 1888c, 383-385; Myers, 1892g, 445-449; 1903, 1:188-191). Myers considered this not only "one of the commonest phenomena of hypnotism," but also "one of the most striking of all our indications of latent faculty" (1898b, 105). Although the phenomenon was commonly attributed to suggestion -- "a mere example of the subject's obedience to the hypnotiser" -- it involved more than the subject's compliant use of a familiar faculty: "For under ordinary circumstances my subject simply can not see a tiger at will; nor can I affect the visual centres which might enable him to do so" (1903, 1:233). The study of experimentally induced hallucinations was clearly also, Myers believed, "an important prerequisite" for understanding the spontaneous veridical cases of apparitions (1892c, 319-320).

Members of the SPR -- especially Gurney, Henry and Eleanor Sidgwick, and Myers himself -- thus conducted "a long series of experiments," beginning in 1883, on the induction of hypnotic and post-hypnotic hallucinations, positive as well as negative (1892g, 445). In one series of experiments, for example, conducted in March 1891 and reported to the International Congress of Experimental Psychology in August 1892 (Myers, 1892g, 459-465; Sidgwick & Myers, 1892), Myers raised, and began to examine, several research questions. He gave suggestions to a hypnotized subject to see (when he awoke) a particular object, but "without detail in order to see how his mind developed the idea" (1892g, 459-460). In one case, the hallucination seemed to have been "founded upon a

mental picture suggested by my words, rather than on the words themselves," since Myers had suggested that the subject see a hippopotamus but the subject apparently saw instead a rhinoceros (1892g, 460).¹³

Myers also conducted some experiments to observe the interactions of two hypnotized subjects to whom he had suggested that, when awakened, they would see a scene in a glass of water "arranged as a speculum" -- but the scene suggested was different for each subject. The purpose was to see whether, while describing their different perceptions, either could "persuade the other to accept his version of what was going on" (which they did not) (1892g, 460-461). These experiments were pertinent to the question of collective hallucinations and the extent to which one person might influence others to see something they otherwise would not or could not see. The question was particularly important when considering whether collective hallucinations could be explained as suggestion from the primary percipient to bystanders or whether they should be considered the result of some stimulus that had affected each of the percipients individually.

Myers was also interested in the question of "the duration, intensity, and optical behaviour of the hallucinations thus induced" (1892g, 446). Hypnotists of the Nancy school thought that hallucinations were purely psychological and that the subject would see, for example, a magnified image when told that a plain glass was really a magnifying glass. According to Myers, this hypothesis was supported by some cases (1892g, 447). Researchers of the Salpêtrière school, in contrast, thought that hallucinations were focused around a point de repère and that as a result the hallucination would follow normal optical laws, depending on how the point de repère was affected; and this hypothesis too had cases to support it. Lombroso claimed to have found an even more unusual effect:

He holds that he has produced by suggestion hallucinatory images of the solar spectrum, which have then been modified correctly by looking through a glass of some given (hallucinatory) colour. The

images have thus, he thinks, followed optical laws unknown to the subject, and not suggested by the operator. (Myers, 1892g, 447)

Myers's view was that all these hypotheses might be correct, but that there was a more general psychological, or volitional, principle at work behind all the relevant phenomena: The hallucination could behave either optically or psychologically, or both, using whatever means were necessary "to induce and maintain" the suggested idea. An hallucination was, he believed, "no simple, isolated phenomenon. Rather it is an intelligent adaptation of means to ends" (1892g, 448). Once again, Myers's hypothesis was an attempt to suggest a broader theoretical understanding that could accommodate evidence apparently supporting two opposing hypotheses.

The study of the enhancement of psychological processes under hypnosis also seemed a promising line of research. Experiments in post-hypnotic suggestion by Gurney, Delboeuf, and Bramwell showed that some level of subliminal consciousness could conduct complicated arithmetical calculations or keep track of a specific lapse of time (1903, 1:502-510). Such experiments promised further understanding of such spontaneous phenomena as arithmetical prodigies or claims of some people that they could awaken themselves at pre-determined times (1898b, 104; Sidgwick & Myers, 1892, 605-607). Another well-known effect of hypnosis was the subject's heightened powers of dramatization or mimicry, the study of which, Myers thought, could aid in the understanding of creativity and genius (Barrett, Gurney, Myers, et al., 1883a, 223; Myers, 1898b, 104-105; Myers, 1903, 1:510-511). The ability to mimic another person's handwriting also seemed important to study. According to Myers, "a hypnotised subject can frequently imitate any known handwriting far more closely than in his waking state" (1893e, 107; see also 1887b, 236, 251-252). Such hypnotic phenomena of mimicry were relevant to evaluating claims that an entranced medium or automatist had exhibited the character or even handwriting of a deceased person.

The study of the enhancement of perceptual functioning in the hypnotic state was clearly, in Myers's view, the area of research with the most far-reaching potential for bringing new knowledge about psychophysiological processes. In Myers's view, normal sensory perception, hyperaesthesia, heteraesthesia, and telaesthesia or telepathy -- all developments from the primitive general panaesthesia -- were on a perceptual continuum with no fixed or rigid boundary separating the one from the other. One form shaded gradually into another, and attributing a perception to one of them required knowledge of the limits or possibility of the others. Hypnotic hyperaesthesia, or the enhancement of the normal five senses, seemed particularly well established; Bergson's case of a boy who could, while hypnotized, identify objects reflected in the corneas of the experimenter's eyes was just one example (Myers, 1887c; Myers, 1903, 1:477-479). Myers and his colleagues reported their own experiments in which a hypnotized subject could detect the hypnotist's whisper even when obscured by other, loud noises (Barrett, Gurney, Myers, et al., 1883b, 255-256; Myers, 1887c, 538). The line between hyperaesthesia and telepathy or telaesthesia, however, was a difficult one to draw, as illustrated by the case of a hypnotized girl who was given the suggestion to see, when she awakened, a portrait on the back of a playing card (the king of clubs). The girl could then pick out the king of clubs from the deck, presumably by the hyperaesthetic recognition of a slight mark or other point de repère on the card. She also, however, recognized another king of clubs in a different deck, placed face downwards on the table. Whether she was able to see through the card hyperaesthetically, or whether her perception of it derived from some other, nonsensory perceptual capacity, was an unanswered question (1887c, 536-537). Myers especially warned against letting the hypothesis of sensory hyperaesthesia become "almost magical¹⁴," as in the suggestion that subjects hypnotized at a distance had actually heard "the changed sound accompanying the hypnotiser's quickened circulation" (1887c, 535).

The phenomenon known as "transposition of senses" was also difficult to interpret and called, Myers thought, for further experimentation. The early mesmerists (and at least one researcher contemporary with Myers, Professor Fontan) had claimed that some hypnotized subjects could detect with one sensory organ stimuli ordinarily detectable only by another. In so-called dermo-optic perception, for example, a subject might "read" with his fingers. Some people interpreted this phenomenon as a clairvoyant one; but the possibility of suggestion or of hyperaesthesia had not been eliminated, and Myers once again urged renewed experimentation (1888e; 1903, 1:500-502).

A similar problem of distinguishing telepathy and hyperaesthesia arose in a series of experiments carried out by Gurney (and later by Eleanor Sidgwick). A hypnotized subject was placed such that his hands were concealed from his sight; the hypnotist then attempted to induce rigidity and anaesthesia in two of the subject's fingers by pointing at them (Barrett, Gurney, Myers, et al., 1883b, 257-260). Attempts were made to rule out hyperaesthesia, such as by having another person (not the hypnotist) point to a "control finger" simultaneously, or by placing a plate of glass between the subject's and hypnotist's hands (for a summary, see 1903, 1:533-539); but the possibility of hyperaesthesia nevertheless remained as long as the hypnotist was physically near the subject, and Myers urged experiments in which the hypnotist was some distance away (Myers, 1886e, 174-175).

The transition from hyperaesthesia to heteraesthesia -- or sensory perception of an apparently novel kind, as in dowsing or the alleged detection of metals or magnetic fields -- was also not a clear one; nor was the transition from heteraesthesia to telepathy, telaesthesia, or other supernormal perception (1903, 1:185-187). The early mesmerists had believed that their effects were produced by some novel kind of physical influence that the mesmerist had on the subjects. Esdaile reported experiments in which he had "mesmerized" water, which, when given to a patient in such a way so as not "to

excite suspicion or expectation," had put the patient into a mesmeric trance. To lessen the possibility of suggestion, Esdaile had counted only the results of the first such trials with each patient; nevertheless, "a very large proportion" of his subjects were entranced (Gurney & Myers, 1885, 409). Assuming that the possibility of suggestion had been adequately eliminated, one could conjecture that these effects could have derived from the subjects' perception of physical changes in the mesmerized water (or heteraesthesia), as Esdaile believed; or they could also have resulted from a telepathic, or "silent willing," influence from Esdaile himself to the subjects (or some supernormal mode of perception), as Gurney and Myers alternatively suggested (Gurney & Myers, 1885, 409n).

Gurney, Myers, and their colleagues attempted an interesting variation on Esdaile's experiments. An object was "mesmerized"¹⁵ by one experimenter and placed among some other objects. (In the first two trials, the object -- a cardboard box or a pocket-book -- was placed among dissimilar objects; in the rest of the trials, a "mesmerized" book was placed among nine other identical volumes.) The first experimenter then left the room, and the subject was brought in to attempt to pick out the "mesmerized" object. The chances of the subject's detecting temperature changes in the target object were reduced by using non-metallic objects and either by handling all the objects or by not allowing the mesmerist to touch the mesmerized object. An additional precaution was not to allow anyone who knew the identity of the target object to be in the room while the subject was selecting the target. In these conditions, the subject succeeded in seven consecutive trials. The experimenters calculated that the odds of this being done by chance were ten million to one (Barrett, Gurney, Myers, et al., 1883b, 260-262).

Such experiments shaded into others in which the hypothesis of telepathy or some other supernormal mode of perception clearly had to be considered. Myers believed that hypnosis, as the experimental means of reaching sub-

liminal levels of consciousness, was thus also a means of occasionally eliciting latent subliminal faculties in the "ultraviolet" end of the spectrum of consciousness.

There were several lines of research he thought particularly important to pursue. One of these was in "silent willing." In these experiments, one person would try to influence the actions of another solely through silent commands. The psychical researchers had long recognized that most such reported instances involved nothing "more than an unconscious reading of slight muscular hints" (Gurney & Myers, 1885, 416).¹⁶ For this reason, experiments in "silent willing" should involve "neither contact nor movement" (Gurney & Myers, 1885, 417n). The psychical researchers reported numerous successful trials in silent willing (although the close proximity of the hypnotist to the subject in most of these left open the possibility that "contact" and "movement" in a broader sense had not yet been totally eliminated (Barrett, Gurney, Hodgson, et al., 1883; Barrett, Gurney, Myers, et al., 1883b)).

Myers and his colleagues also attempted experiments in what they called "community of sensation." In these experiments, a sensation (usually of touch or taste) would be given to the hypnotist, and the reactions of the hypnotized subject would be observed (or asked for). Such experiments had been conducted, apparently successfully, by Esdaile, Elliotson, and other mesmerists (see, e.g., Barrett, Gurney, Hodgson, et al., 1883, 20-23; Gurney, Myers, & Podmore, 1886, 2:324-329). Similarly, the SPR researchers seemed to obtain successful results (Barrett, Gurney, Hodgson, et al., 1883, 17-19; Barrett, Gurney, Myers, et al., 1883a, 224-227).

A variation on these community of sensation experiments were some experiments reported by the Salpêtrière physician, Babinski, and repeated for Myers, Gurney, and A. T. Myers on one of their visits to Paris (Myers, 1886h, 443-450). In these experiments Babinski hypnotized two of his hysterical patients and attempted to transfer from one patient to the other, by the use of magnets, hysterical symptoms (including paralysis, con-

tracture, and mutism). Myers did not believe that suggestion had been adequately ruled out of Babinski's experiments, but he urged that they be repeated with some precautionary measures that he suggested to be added (1886h, 448-449; 1893e, 27).

In 1889 Myers reported to the First International Congress of Experimental Psychology the results of some experiments that he and other members of the SPR had carried out. The subject was hypnotized and then (usually) separated from the experimenter by a screen. A two-digit number was randomly drawn from a bag, the experimenter concentrated on it, and the subject was asked what it was. Over "a very long series of experiments," the results were "vastly greater" than chance (A. T. Myers, 1889, 181-182; Myers, 1903, 1:547-548). At the same meeting, Richet reported that he had succeeded in replicating the results; Delboeuf reported that he had not (A. T. Myers, 1889, 182).

Mesmerists and hypnotists had often reported apparent success in inducing supernormal perception in subjects (for examples, see 1903, 1:543-546, 553-559). Myers and other members of the SPR therefore conducted some experiments in which the hypnotist would attempt to transfer to a hypnotized subject the vision of a scene, rather than a number. Many trials were successful (e.g., 1892g, 463-465; 1903, 1:550-553). In a series conducted by an experimenter in Sweden, which Myers witnessed, the hypnotized subject was given a folded letter and asked to describe the impressions she received simply from handling it. Myers considered two out of four such attempts to be "at least partial successes," although the results were necessarily less unambiguous than with simple targets (1892b).

The effects of distance on the apparent supernormal transference of ideas from one person to another are of course crucial to take into account when evaluating possible explanations -- normal and supernormal -- for the phenomena. Myers thus considered some experiments by Janet and his colleague Gibert to be among the most important kind yet attempted (Janet, 1886/1968a,

1886/1968b; Myers, 1886e, 127-137). (I briefly described these experiments in Chapter 4.) In 25 trials (for some of which Myers and his brother Dr. A. T. Myers were present), Janet or Gibert attempted to put their subject Madame B. (Léonie) to sleep from a distance varying between one-quarter and one mile. (Occasionally an additional action was also suggested.) In 19 out of 25 trials, they succeeded, and their apparent success led Myers to urge not only that these experiments be continued, but also that experiments in the distant influence of a subject's physiological state (such as vasomotor, circulatory, or respiratory systems) be attempted (1893e, 31-32).

To Myers, experiments at the Salpêtrière such as these, and such as Babinski's transference of hysterical symptoms from one patient to another, were "a gain to our [telepathic] researches of a most important kind." He added that "the physicians of the Salpêtrière are not likely to drop the inquiry; and we may hope that the experiments...are but the first instalment of what they may yet achieve" (1886h, 450). Unfortunately, as I explained in Chapter 4, Janet and his colleagues did soon drop this line of research entirely.

Hypnosis and the Nature of Mind: In addition to new knowledge about latent capacities of subliminal consciousness, Myers believed that the study of hypnosis would lead to new knowledge about the nature of mind. As I explained in the last chapter, Myers thought that, although the new scientific study of mind was leading to a view of it as an aggregate of parts that could be fragmented, when pushed even further experimental psychology would show that there is an underlying unity to mind. Studies with hypnosis would, he hoped, contribute importantly to this expanded view of mind. Recent psychological observations had reinforced dramatically the awareness that our supraliminal mind and memory are "imperfect and interrupted in a high degree," but hypnotic experiments in particular were also beginning, he believed, to show that our subliminal memory and consciousness are

"actually in some sense more continuous than the primary [supraliminal]" (1892c, 303). I repeat his statement that

We all know that the hypnotised subject as a rule remembers waking life, but that the awakened subject as a rule has wholly forgotten the events of his hypnotic trance. The full significance of this fact...has hardly yet, I think, been realised in any quarter. (1892c, 303)

Hypnosis was to Myers primarily a means of eliciting subliminal psychological elements and levels of the individuality. Once elicited, these subliminal elements began to form new memory chains -- that is, memories became grouped together in such a way as to form a new personality once the grouping became sufficiently complex, and the new personality or grouping of memories was what re-emerged when the state of hypnosis was re-evoked. Myers considered "this formation of a secondary chain of memory" to be even more fundamental to the nature of hypnosis "than the susceptibility to suggestion" emphasized by most of his contemporaries (1888c, 387). Furthermore, "the central indication of a change of hypnotic state will be a change of the scope of memory," not somatic changes, as the Salpêtrière scientists believed (1888c, 388). The most important problem of hypnosis, therefore, was the relation of the different memory chains or personalities (1888c, 376; 1888f, 368). And the first and (with Janet's) most important work in this area was that of Gurney, which remained little known or appreciated despite its having "practically opened up in England a whole department of experimental psychology" (1888f, 368). By studying the content and persistence of memories in different hypnotic states, Gurney had begun to show not only that the hypnotic states have and maintain distinct memory groupings, but also that they thus in some sense persist and continue to operate even when not overt (1888c, 377).

Myers also thought that the study of memory in hypnosis was important for addressing the question of whether sensations or memories that disappear because of a hypnotic suggestion (or in hysteria) are in fact lost

or are simply submerged:

The problem thus suggested is one of wide-ranging importance...[because it] ultimately involves the question of the relation of our assumed underlying individuality to the various personalities through which it finds partial and temporary expression. (1892c, 324)

He hypothesized that such sensations or memories were not abolished, but were transferred to or registered by another strata of consciousness, from which they could potentially be re-evoked by changes of consciousness such as hypnosis (1888c, 385, 393):

Thus, in a word, nothing which my organism does or suffers is unconscious, but the consciousness of any given act or endurance may form a part of a chain of memories which never happens to obtrude itself into my waking life. (1888c, 388)

A corollary of this -- suggested both by spontaneous multiple personality cases and by experiments in hypnotic memory -- was that there may be a "state which includes the memories of other states, but is not included by them." Myers thought that, because this state is the broadest or most inclusive one, it "has a prima facie claim to be considered as the profoundest state of the [person], though it may not be the state best suited for the ordinary business of life" (1888a).

A related problem that needed to be addressed in research was the process by which separate memory chains -- and thus personalities -- were formed. Janet, Elliotson, Gurney, and others had noted "how very different, in different cases, is the amount of personality which the hypnotised subject is able to manifest" (1888c, 390), ranging from simple states of mono-ideism to full-blown, fully functioning personalities. Myers suggested that "the time spent in the hypnotic trance, the experience gained therein," was the crucial factor. Similarly, in spontaneous somnambulistic cases, the more time the secondary state functioned, the more memories and experience it would accrue, and the more it would come to resemble the primary state in scope and capacity (1888c, 391-392). Again, however, this was a question toward which empirical research could and should be directed.

The Nature of Hypnosis: One major motivation behind the work of Myers and Gurney on hypnosis was their hope of moving beyond the controversies over the essential nature of hypnosis and arriving at some better, more comprehensive view. As I explained in Chapter 5, the primary argument over the nature of hypnosis was whether, as the mesmerists argued, it was the result of an unknown physical force or effluence passing from the mesmerist to the subject; or whether it was, as most late-19th-century scientists had come to believe, a change in the subject's psychological state brought on by suggestion. Gurney and Myers believed strongly that both the mesmeric hypothesis and the hypnotic hypothesis had merit, since they both seemed to have observations backing them up. On the other hand, they also believed that the "effluence" -- whatever it was that seemingly emanated from the hypnotist to cause an effect in the subject even when the subject was unaware of the attempt -- was probably not a new physical force but a psychological one. Likewise they thought the suggestion hypothesis was inadequate since (as I will discuss further below) suggestion itself was unexplained. They thus cautioned against a too-thorough abandonment of the old mesmeric hypothesis and the too-eager readiness to allow the hypnosis (that is, suggestion) hypothesis to become the new dogmatism (see, e.g., Gurney & Myers, 1883). They clearly saw the task of the SPR as that of attempting to reconcile the two positions by bringing data from both sides together within a broader perspective -- their usual "tertium quid" approach to controversies. As a result, much of the experimental work on hypnosis that they undertook -- such as the finger anaesthetization studies or the "mesmerizing" of target objects -- was intended to re-examine the mesmeric hypothesis that had by then fallen into disfavor with most psychologists (e.g., Barrett, Gurney, Hodgson, et al., 1883; Barrett, Gurney, Myers, et al., 1883a, 1883b).

A point about hypnosis to which Myers returned most frequently, however, stemmed from his fear -- justified, in the light of what actually happened after the turn of

the century -- that the problem of hypnosis would not be adequately pursued because of the mistaken perception that it had been "explained" as the result of suggestion. Suggestion, it was said, produced the effects it did because in a "suggestible" person, it led to the suspension of the volition or will, to the person's complete absorption in some idea, and to the "increased internal responsiveness of the organism" (Gurney & Myers, 1883, 699; 1903, 1:xxxv). The "suggestion hypothesis," however, was simply a description of the subject's condition, and "not in any way an explanation" of how the condition was brought about (Gurney & Myers, 1883, 699). There is obviously a "profound nervous change," but how is it effected? Many people

use the word suggestion as though this were in itself an explanation of the way in which the phenomena are produced, ...[but] they...seem hardly to think it needful or possible to inquire how it comes to pass that a sane man's psychical balance is capable of being thus suddenly disturbed

-- and particularly by a method that would seem to have "little more efficacy than the mere utterance of a charm" (1892c, 300-301). In short, the words "suggestion," "self-suggestion," and "suggestibility" are "mere names which disguise our ignorance" (1903, 1:153).

Myers believed that all the phenomena of suggestion or hypnosis were, in the final analysis, phenomena of self-suggestion, set in motion either by external or by internal events. Moreover, the phenomena of suggestion are fundamentally subliminal processes. In his view, therefore, suggestion is a process that activates the subliminal consciousness, or at least a portion of it (1891a, 170; 1892g, 446; 1903, 1:169). As Myers clearly recognized, this definition of suggestion was no more a true explanation of it than suggestion was an explanation of hypnosis. Nevertheless, he thought that it could help advance our understanding -- and direct our empirical research -- by clearly making hypnosis and suggestion part of a larger problem of psychology, namely, that of the activation of subliminal functioning in general (1903, 1:169). As both an experimental method for

psychology and as a theoretical problem, hypnotic suggestion should, he thought, be central to psychology: "Any psychology which neglects it is superannuated already" (1885d, 641).

Sensory Automatisms

In addition to hypnosis, the other major experimental method pertinent to psychology's problems was, in Myers's view, the study of automatisms. As I explained earlier, he defined automatisms generally as communication between subliminal and supraliminal segments of consciousness; and he divided automatisms into two general modes of manifestation -- the sensory and the motor. Sensory automatisms were those "messages which the subliminal self sends up to the supraliminal in sensory form," especially visual or auditory forms, "externalised into quasi-percepts" (1903, 1:23, 222). Because the study of automatisms (both sensory and motor) might reveal much about "the extent of subliminal faculty" and thus about the nature of mind in general, Myers thought that such "sights projected outwards from within us are to the psychologist even more interesting than the sights projected inwards from without" (1903, 1:24). Myers referred approvingly to an article by the psychologist G. T. W. Patrick (1898) in which he issued "a strong appeal to experimental psychologists to occupy themselves with the study of the phenomena of automatisms" (Myers, 1899b, 382). Patrick had noted that experimental psychologists had been reluctant to pursue such topics in the past, believing that they would undermine "the dignity" of the field; but now, he said, experimental psychology was past

its probationary period and may quite freely choose its subjects for research, and at present there is perhaps no other subject promising to throw more light upon certain dark chapters in mental science than that of automatism. (Patrick, 1898, 557)

As I mentioned in Chapter 6, Myers thought that the subliminal consciousness expressed itself in a language of its own, a primarily non-verbal language. Moreover, the images that emerge from subliminal levels of consciousness are "other than exact copies of the original

impressions," but often take generalized or symbolic forms (1892g, 450, 455). Subliminal consciousness may, for example, show "that incoherent or accidental association which is the basis of a 'play upon words'...frequently observable in dreams" (1892g, 455). The study of spontaneous automatisms could begin to familiarize psychologists with this subliminal language, but, to do so, what was particularly needed for this was a method "to systematise such insurgences;...some empirical process which will enable us to get at subliminal pictures whenever we will" (1892g, 455). Hypnosis was one such experimental method; but it did have certain disadvantages: What was also wanted was a method that would leave the subject in his or her ordinary state of consciousness and that would allow the study of the subject's mental processes "undisturbed" by suggestion from another person (1892g, 449). Myers pointed out that throughout history people had been inducing hallucinations, for divination purposes, with various forms of speculum (or crystal) gazing (1892g, 458). The method involved simply gazing into a crystal, dark mirror, glass of water, or any other clear surface having as little reflection as possible. For some people, images would eventually appear as vivid hallucinations externalized onto the surface. Although long associated with occultism and superstition, crystal-gazing was analogous to such phenomena of hypnosis as post-hypnotic hallucinations or the suggestion to see images on blank cards; and Myers believed that crystal-gazing, like these, could be appropriated from unscientific practices and developed as an experimental method in psychology (1892g, 459, 465). Moreover, since spontaneous hallucinations take the form of different sensory modalities, there was no a priori reason why experimental ones should not as well, and so Myers called attention to the possibility of "shell-hearing" or some similar means of inducing auditory hallucinations (1892g, 492).¹⁷

The first question to be addressed was who would make a good subject. Janet and other physicians of the Salpêtrière had argued that "automatism...cannot exist in

quite normal persons; it must in itself be a sign of abnormality, that is to say, of actual or latent disease," a view with which Myers disagreed, given his own observations of automatists and the growing evidence that a state of hypnosis could be produced in healthy people (1892g, 470; Wingfield, 1889). There was, however, a need to determine the proportion of normal to hysterical subjects susceptible to such hallucinations (1899a, 371), just as there was a need to determine the overall proportion of people who could succeed in crystal vision. Myers mentioned that 10 out of about 50 people he knew who had tried crystal-gazing had succeeded in inducing hallucinations, but he cautioned that that was far too few a number and limited a range of people to draw any conclusions about the actual incidence (1892g, 472); and he thought that the ability would probably not be a common one (1903, 1:237).

Another question, as pertinent to the study of crystal visions as to the study of hypnotic hallucinations, was the relation of such hallucinations to optical effects, as opposed to the effects of suggestion (1892g, 446-449; 1903, 1:239-240); and Myers urged such a study, saying "I can imagine no fitter problem for research in a psychological laboratory" (1903, 1:240).

The most important question, however, was the actual content of the hallucinations, or messages from the subliminal consciousness. In general, Myers thought, crystal-gazing and shell-hearing seemed more often to present subconscious rather than conscious material, and in early attempts at sensory automatism, the content would often be nothing more than "confused reminiscences" (1892g, 483). But as the phenomena developed, the content then seemed to break down into three further classes. First, there was material that had once been known but was forgotten. Second, there was material that had been within one's sensory range but had never been consciously perceived. Finally (and most rarely), there was information about events that seemed never to have been within the automatist's sensory range of functioning (1892c, 318-319; 1892e, 348).

"Miss X." (Ada Goodrich-Freer) had been the first person to report results of some attempts at crystal-gazing ([Goodrich-Freer], 1889). Myers followed this up with further reports from Miss X. and from some other persons known to him (1892g, 473-527; 1903, 1:575-598). Outside the SPR, however, there were few such experiments to report. Myers noted that Miss X.'s paper had inspired Janet to use crystal-gazing with some of his hysterical patients, as a means of trying to recover forgotten memories and dreams, and he apparently had some success with this (1892g, 482-484). Some years later, Myers called attention to a paper by Morton Prince, published in Brain, in which he reported his study of some hallucinatory visions of a patient of his who had induced these by gazing into an unconnected light bulb (Myers, 1899a). Prince reported that his patient had become completely absorbed in her visions and apparently oblivious to her surroundings, but that she seemed not to have entered a trance. He also reported that the content of her visions was usually of events of which she had never been consciously aware, including one attempt she made to locate a lost pin. Myers called this the "line of inquiry" he most hoped that Prince would pursue. Prince unfortunately had not reported whether the pin had actually been found at the place seen, nor did he say whether he had even made any attempt to verify this or any other of his patient's visions; and Myers pointed out the extreme importance of doing so (1899a, 370-371).

In short, Myers believed that such methods as crystal-vision and shell-hearing "should become one of the habitual and recognised occupations for the psychological laboratory." They would not, however, be adequately studied until psychologists had discarded the old notion of them as superstitious, occult practices and had adopted "the view which I have often suggested: -- namely, that these crystal-pictures are experiments in the extension and externalisation of inward or central [i.e., non-optical] vision." When they did, he thought that the findings might eventually prove "even fuller of instruction" for theoretical psychology than external

modes of vision (1899a, 371-372).

Motor Automatisms

When a subliminal impulse or idea was expressed through motor functioning -- that is, "by movement of limbs or hand or tongue" (1903, 1:222) -- Myers classified it as an active, or motor, automatism; and he considered impulses which inhibited activity to be motor automatisms as well as those which impelled activity (1892c, 324). He identified numerous categories of activity as motor automatisms, including general motor impulses (such as to go -- or not to go -- somewhere), simple or specific impulses (gestures such as table-tilting), automatic (or trance) speech, and supernormal movements of objects or production of noises (telekinesis, now called psychokinesis) (1893e, 39-40). Like crystal-vision, most of these motor automatisms were ridiculed by scientists as occult or Spiritualistic nonsense. As with crystal-vision, however, Myers urged that these old associations be dismissed, that the basic methods involved be adopted and adapted by psychologists, and that the results be viewed not "as authoritative revelations from the spirit-world, but rather as indications of what is going on in ourselves beneath the threshold of our ordinary consciousness" (1895c, 30). Myers himself was primarily interested in the question of whether the content of automatisms ever derived from a source outside the automatist's own mind, but most of his early papers on automatic writing and other automatisms were devoted to demonstrating that "the great majority of such communications represent the subliminal workings of the automatist's mind alone" (1893e, 41). Moreover, "the messages thus given do not generally rise above the level of an incoherent dream," although sometimes they would provide veridical information (that is, factual and verifiable information unknown to the automatist) (1903, 1:27). But whatever their source and content, he believed that the study of them could yield much knowledge about the extent and capacities of mental functioning (1893e, 42).

Myers believed that automatic writing -- executed while the automatist was (usually) in a normal state of consciousness, but while his or her attention was concentrated elsewhere than on the writing -- was one of the most important methods available to psychologists for "throwing light upon the workings of the subconscious strata of the mind" (1890d, 671). As a result, he devoted several of his earliest papers to this topic (1884, 1885a, 1885b, 1887b). As I have mentioned earlier, he believed that all automatisms took the specific forms that they did, in particular individuals or on particular occasions, because they followed habitual "paths of externalisation" in that individual. One would expect therefore that automatisms might frequently take the form of writing, since for most people writing is a "deep-seated thing":

It is...well known that in moments of vivid emotion the surplus nervous energy escapes in involuntary channels, which often bear some traceable connection with the habitual modes of thought or action of the person concerned....Now the act of writing being one of the commonest of the more complex acquired acts, we shall naturally expect that many half-conscious or unconscious tricks will be connected with it.
(1884, 222)

In certain persons, if the attention is sufficiently diverted from the writing, the automatic writing may develop into more than the simple doodling common to many people and attain "a degree of complexity hitherto little suspected" (1885a, 248). Because of this degree of complexity, together with the conviction of the automatist that the writing had not been the product of his or her own (conscious) mind, many people had come to interpret the phenomenon as the product of some external agency (usually, deceased persons). A major thesis of Myers's papers on automatic writing was that such an interpretation was (in most cases) unnecessary, and he also argued that much "mischief...is being done to the minds of men and women...by the unquestioning reception of those spurious self-generated revelations" as "spirit revelations" (1885b, 33).

On the other hand, automatic writing was also not

necessarily evidence of psychopathology. As I explained in Chapter 6, Myers believed that automatisms could take evolutive and dissolutive forms, as well as neutral (or "normal") ones. Some automatic writing was pathological in origin, but automatic writing was by no means therefore pathological per se: "We must not ticket them as hysterical any more than we must ticket them as Spiritualistic" (1887b, 216). Myers insisted that the psychological mechanism was the same -- that is, that automatic writing was the product of the subliminal consciousness operating during abeyance of operation by the supraliminal -- even if the initiating cause of the supraliminal's abeyance of operation was different. He thus suggested that a comparison of induced automatic writing and the writing of neurologically damaged persons might increase our knowledge of the role of mental as well as physiological states as primary causal factors (1885b).

It was important therefore to distinguish the abnormal, normal, and supernormal manifestations of automatic writing and not to assume that all instances could be subsumed under one category. Abnormal manifestations could often be distinguished by the context in which they occurred, that is, whether the automatist's overall physical or mental ill health seemed to have been primarily responsible for the phenomena. Supernormal manifestations, however, could only be determined by the content of the automatisms, that is, whether the information conveyed had originated outside the automatist's sensory range of functioning (1887b, 258). For Myers, "the attractiveness of automatic writing as a subject for inquiry...largely derived from its direct bearing on the relation of consciousness to telepathy" (1885b, 28): He believed that telepathy was a function of the subliminal consciousness (1885b, 30); that automatic writing was a means of revealing contents of the subliminal consciousness in a directly verbal (as opposed to merely behavioral) manner; and that it thus provided a particularly good means of evaluating the content of subliminal mentation for any telepathic (or other

supernormal) features.

Myers described the Newnham case of automatic (planchette) writing as an important example of the kind of supernormal results that could be obtained in experiments with automatic writing (1885b, 6-23)¹⁸. Automatic writing could also, however, provide insight into other important subliminal processes. Both Janet and Binet had successfully used automatic writing with their hysterical patients as a means of revealing subconscious memories or other mental processes (Myers, 1887b, 239-241; 1889c, 202-203). The study of automatic writing could also aid in examining the process of personality formation and the development of secondary personalities. Myers believed that any altered state of consciousness could potentially lead to the formation of another personality, since there seemed to be continuity of memory in the altered state between one occasion and the next:

I believe that whenever there is any habitual alteration...of the threshold of consciousness we shall find an incipient formation of a secondary chain of memories, linking together those periods of altered consciousness into a series of their own. And when once a second mnemonic chain is woven, the emergence of a secondary personality is only a matter of degree. For any difference in memory involves a certain difference in character. (1887b, 225)

The study of automatic writing could also aid in understanding the relationship between the primary and secondary personalities. Because automatic writing often occurred while the subject's waking mind was involved in some other task (say, conversing or reading aloud), both the waking and the subliminal consciousness seemed to be functioning simultaneously, not alternately. In the Clelia case (1884, 226-231) of Myers's friend Mr. A., for example, Mr. A. remained wholly conscious while his hand wrote independently of his conscious mind. Mr. A. would direct questions to the writing consciousness and receive written replies that were, for the most part, coherent, but were ultimately nonsensical. This case, therefore, was not just "a good instance of the capricious half-nonsense which believers in Spiritualism often unhesitatingly refer to the agency of spirits" (1884,

226); it was, much more importantly, evidence that "the unconscious mentation flowed on intercurrently with the conscious," and thus it was evidence of a "kind of active duality of mentation -- ...[of a] kind of colloquy between a conscious and an unconscious self" (1885b, 25).

With these hints of what the study of automatic writing might do, Myers particularly urged that sustained research be undertaken. What was needed, he said, was not "fleeting instances" but "a series of experiments of a more solid and prolonged order" (1885b, 6). The Newnham experiments, he thought, were especially important ones to replicate (1893e, 61). In 1887 some money left to the University of Pennsylvania for an investigation of Spiritualism had been used to study some professional mediums; Myers lamented that this had been a waste of resources, since it was already well known that most such mediums were easily detectable in fraud and "should be given a wide berth." Instead, he suggested, there should be research that could "yield important psychological lessons," namely, sustained studies of automatic writing such as the Newnham series, designed to examine "the mechanism and the content of automatic messages" and how they may differ from (or resemble) the mechanisms and content of supraliminal processes (1888d, 262).

Although praising their willingness to undertake a psychological study of automatic writing, Myers nonetheless also chided Leon Solomons and Gertrude Stein for what he considered their truncated (and hence insufficiently penetrating) study of automatic writing (1896b, 318). Because, in their brief attempts at automatic writing, they had succeeded in inducing only relatively simple phenomena and not complex psychological phenomena such as memory or creative processes, they had concluded that the secondary personality shows no complex or unusual psychological abilities. Myers, however, thought that neither a secondary personality nor complex mental phenomena would be produced unless the subliminal state of consciousness associated with the automatic writing had been able to function repeatedly and over an ade-

quately long period of time (how long, being a question still to be determined by research). Solomons and Stein, he pointed out, had produced nothing more than "isolated automatisms," not a secondary personality (1896b).

In sum, automatic writing was not the source of inspired revelation that many Spiritualists had credited it with being, but it also, in Myers's opinion, deserved far more serious attention than the sneering derision with which most savants dismissed it: "I do not wish to exaggerate [its] importance....Automatic writing is not a key to all the recesses of our being. But it is a key to something" (1887b, 260-261).

Automatic speech -- such as glossolalia or the so-called mediumistic trance utterances -- was a form of motor automatism Myers considered comparable to automatic writing in potential importance. Like automatic writing, vocal automatism provided a means for verbally expressing subliminal mentation, although (again like automatic writing) much of it, especially in the early stages, was gibberish (1885b, 46). Moreover, like automatic writing, automatic speech had its pathological counterpart, in neurologically caused aphasia (1885a, 238). Automatic speech was also primarily associated with occult or superstitious practices, such as the speaking in tongues of certain religious groups or the trance utterances of Spiritualistic mediums.¹⁹ Again, however, the only way to judge the source of the utterances was to examine closely their content for veridical information unknown to the automatist; and most of them were, when so evaluated, "eminently barren of fact" (1889a, 534). One case that Myers did not find barren, however, was that of Mrs. Piper, the trance automatist studied extensively by William James and Richard Hodgson. Like James and Hodgson, Myers considered some of Mrs. Piper's trance utterances to be definitely supernormal, and he thought that the development and study of automatists such as Mrs. Piper was of paramount importance to psychology (1890c).

Automatic writing and automatic speech were the most useful modes of motor automatism with which to study subliminal mentation, since they were verbal; but motor

automatisms did not always take the most scientifically useful form. As Myers said, "it is to writing and speech that we look with most interest among the communications of the unconscious self. But it does not follow that the unconscious self will always have such complex methods at its command" (1889a, 529). Sometimes, instead, mere gestures may be all that emerges. Such gestures necessarily provided less content for analysis than verbal automatisms did, but they could still be of interest to psychologists. Muscle-reading, for example, provided "another avenue into the unconscious mind" (1885b, 4). It had long been recognized that in many presumed instances of "mind-reading" (especially whenever there had been tactile contact between the two people), the percipient had in fact unconsciously "read" minute muscle tremors and movements of the agent. This muscle-reading was the usual explanation for the then-popular practice of one person attempting to locate an object hidden by another person (1903, 2:88-89). Even though this phenomenon was not an instance of supernormal perception such as telepathy or clairvoyance, it was nonetheless of potential interest to psychologists as an indication of how one person can convey an idea to another person without either one of them being conscious of the process.

A somewhat similar phenomenon was that of dowsing. For centuries dowsers have claimed to be able to locate concealed water, minerals, or objects, simply by the movement of a rod or twig that they held. These movements seemed to be attributable to unconscious muscular movements of the dowser; but this phenomenon differed significantly from muscle-reading in that the dowser was obtaining the information directly from the hidden object rather than from another person. Dowsing may be the result of hyperaesthesia (heightened normal sensory detection of, say, water); of heteraesthesia (an unrecognized sensory ability to detect water); or telaesthesia (supernormal perception). But whatever the mechanism in individual instances, Myers believed that the study of dowsing -- including the number and kind of

successes and failures, as well as the psychophysiological mechanisms associated with them -- could contribute to knowledge about subliminal capacities and processes (1903, 1:480-481).

Myers called attention to a more complex, but completely non-verbal form of motor automatism that also might prove of interest to psychologists. This was the phenomenon of automatic drawing or painting, in which the automatist executed drawings or paintings with a facility, talent, or speed surpassing their ordinary abilities (1889a, 533). Again, such motor automatisms, being non-verbal, were less readily interpretable as subliminal mentation; but, if Myers was correct in conjecturing that subliminal communication is primarily non-verbal, then the mental processes behind automatic drawing might become more apparent as psychologists became more familiar with the "language" of the subliminal mind.

Myers also suggested that his model of motor automatisms provided "perhaps for the first time...a conception of the mysterious and much derided phenomenon of 'table-tilting'" (1889a, 530). In table-tilting "circles," a lightly touched table often began to move, and codes for letters of the alphabet were devised so that on some occasions messages were spelled out. Such verbalization was obviously more laborious and time-consuming than automatic writing or trance speech, but it was an example of the same basic phenomenon. As with the other forms of motor automatism, witnesses had usually attributed these "messages" to "spirits"; and, as with other forms of automatism, Myers emphasized that the source could only be determined by the content of the message -- and seemed usually to be the automatist's own subliminal mind. But, again, whether the source seemed to be the automatist or some other mind, the phenomena produced by table-tilting provided "a curious inlet" into subliminal processes (1887a, 130).

The phenomena of table-tilting seemed to range from simple unconscious muscular movements to the genuinely supernormal movement of the table. The latter kind of phenomena apparently belonged to another category of

motor automatisms, namely, telekinetic phenomena. For years even before the SPR was founded (in 1882), Myers had had hundreds of sittings with persons, often professional "mediums," claiming to be able to produce supernatural movement of objects (1895e, 61); and this experience had convinced him -- up until about 1890 -- that the phenomena produced by most professional mediums could be attributed to fraud (1886b, lix; 1888d, 262; 1890d; 1891c, 146-147; 1895f). In 1891, however, Myers published two papers describing some cases, investigated by members of the SPR, in which there seemed to have been some supernormal movement of objects in connection with persons other than a professional medium (1891c). He also began to publish papers expressing his conviction that a few rare individuals who were professional mediums had in fact on occasion produced genuine telekinetic phenomena. One such person was D. D. Home (Barrett & Myers, 1889). Another (although he was not a "professional" medium in the same sense) was Stainton Moses (1893a; 1894b).

Probably the most controversial such medium, however, was Eusapia Palladino. In 1894 Myers had visited his friend the French physiologist Charles Richet, at Richet's private island (Ile Roubaud), where they (along with the physicist Oliver Lodge, the psychologist Julian Ochorowicz, and later Henry and Eleanor Sidgwick) had conducted a series of sittings with Palladino. Myers was convinced that he had witnessed genuinely supernormal physical phenomena (1894a; 1895e). In the summer of 1895, however, Palladino came to Cambridge (where she stayed with Myers and his family for 7 weeks) for another series of sittings, and this time Myers was equally convinced that the phenomena on this occasion had been fraudulent (1895b; 1895f). Nevertheless, this experience also suggested to him that a medium who resorted to fraud on one occasion might not be doing so on another occasion. He remained firm in his judgment that some of the "far more striking phenomena which I witnessed in 1894 at the Ile Roubaud... [were] inexplicable by the tricks observed in Cambridge" (1895b); and in 1898 he partici-

pated in another series of sittings with Palladino and came away believing that he had again witnessed some supernormal phenomena (1899c).

Even if supernormal, however, no physical phenomenon by itself could support the Spiritualistic hypothesis that the agency was a deceased spirit. Even if some unknown Force X producing the phenomenon "does not proceed from the muscles of the sitters, it still by no means follows that X proceeds from disembodied spirits"; it might instead be some latent capacity of the sitters' subliminal minds (1887d, 91). From his earliest papers to his posthumous book, Myers emphasized repeatedly that it was solely the content, and not the mechanism or mode of production, of an automatism that could determine whether the source of the automatism was the automatist's own subconscious mind or some external agency such as a deceased person. If the content of the automatism included objective, factual, verified information unknown to the automatist, some external agency could be conjectured; if the content was subjective in nature or lay within the probable range of the automatist's knowledge, then there was no need to suggest any agency other than the automatist's mind (conscious or subconscious).

Much of Myers's work therefore consisted of demonstrating that motor automatisms could usually be attributed to the automatist alone and that evidence embraced by many Spiritualists as proving survival after death was wholly inadequate for that purpose. On numerous occasions he expressed his disappointment at the paucity of cases presented by Spiritualists containing veridical, verified content (e.g., 1889a, 546; 1889g, 189n-190n); and likewise on numerous occasions he pleaded for more and better evidence from Spiritualists (e.g., 1887b, 261).

Nonetheless, as I explained in Chapter 5, Myers's overwhelming interest, concern, and motivation lay in his desire to find adequate evidence to support the idea that individual personality survives bodily death. Yet he also recognized, and readily admitted, that evidence for survival was "inferential" or indirect and likely to

remain so (1890b, 339). His general argument was that evidence supporting the theory of the causal efficacy of mental processes undermined the theory that mental processes are wholly dependent on or derived from one particular biological configuration. No evidence could prove the hypothesis of survival; but the accumulation of information pertinent to the question of mental efficacy might contribute to making the hypothesis seem more or less likely.²⁰

I repeat that my purpose in this chapter has not been to evaluate the various studies and lines of research that Myers described and suggested, but to show the kinds of research that he thought would be most useful in attacking psychology's major problems. He himself recognized that his ideas and theories were far-reaching and possibly premature; but these conjectures and speculations were part of a deliberate attempt to encourage empirical research:

My excuse for the bold and comprehensive way in which I have set forth [my] hypotheses...[is that if] there is to be widespread effort there must be widespread interest; and such interest can only be evoked by an understanding of the vast importance of the discovery to which these small and scattered inquiries do manifestly, although remotely, tend. (1892g, 534)

However valid or invalid his ideas may be, they cannot be dismissed (as they too often are) as "mystical," because they were derived from -- and must be confirmed or disproved by -- empirical observations. As he argued,

so soon as [it] is understood...that the existence and nature of subliminal capacities in the self is to be inferred only from actual phenomena observed and interpreted by that empirical self by whose aid science does her work -- so soon does my theory lose its air of mysticism, and ranges itself among hypotheses which may be erroneous, but are not plainly unscientific. (1892c, 306)

CHAPTER 7

Endnotes

¹ Myers's definition implied that an automatism could be an exchange of information from the subliminal to the supraliminal, from the supraliminal to the subliminal, or between different parts of the subliminal (say, from one secondary personality to another). For practical purposes, however, an automatism necessarily involved the transfer of information from the subliminal to the supraliminal, waking consciousness, since we can only become aware of the contents of consciousness that are presented (directly or indirectly) to the supraliminal.

² Claims that a saint or mystic needed little or no sleep have occasionally been made for Catholic mystics (Thurston, 1952, 315) and for Sufis (Attar, 1966, 253). Most such persons spend extended periods of their time in meditation or trance states, which (as some of the mystics themselves have suggested) might have been simply another form of sleep (Thurston, 1952, 315). In Myers's view, trance or deep meditative states are, like sleep, another form of submergence of the supraliminal consciousness and emergence of a subliminal state, and as such they may therefore fulfill some of the functions of sleep while also allowing a level of awareness greater than that of sleep.

³ Hilgard's later hypothesis of a "Hidden Observer" (Hilgard, 1977) is similar to Myers's conception of a deeper level of consciousness that is aware of submerged sensations and memories. Like Myers, Hilgard was not proposing a second, separate self -- "a kind of homunculus lurking in the shadows of the conscious person" (188) -- but a deeper level of one personality. In other respects, however, Hilgard rejects a theory such as Myers's that proposes "unrealized human potential" (209). Hilgard dismisses such ideas as "mystical," but I think he and many other psychologists err in dismissing an idea

because by nature it seems "mystical" to them. The important consideration is not the nature of an idea, but the nature of the approach one takes to either confirming or disproving an idea.

⁴ Phenomena comparable to stigmata among Catholic mystics seem also to occur occasionally among Sufis. There are secondhand reports that some Muslim saints, while absorbed in prayer, have developed stigmata-like wounds corresponding to the wounds suffered by Muhammed in battle (New Catholic Encyclopedia, 1967, 713), but I have not yet been able to trace the source for this claim.

⁵ Among the Druses of Lebanon and Syria, pregnant women sometimes conduct an analogous experiment on themselves. They believe that if they have a pregnancy craving but deny themselves the particular food craved and then touch some place on their body, the baby will be born with a birthmark at that location. I have talked to some Druse women who claim to have produced a birthmark on their baby in this way.

⁶ The original goal in the SPR survey of hallucinations was to collect 50,000 responses (Barrett, Massey, Moses, et al., 1884a, 51). In 1886 Gurney reported the results from 5705 replies (Gurney, Myers, & Podmore, 1886, Ch. XIII). After Gurney's death, the survey was re-initiated at the 1889 Congress of Experimental Psychology and expanded to include surveys in France and America as well as England (A. T. Myers, 1889, 173; Myers, 1891e, 638-639). In 1894 the results of a survey of 17,000 persons were reported (H. Sidgwick et al., 1894). In both the 1886 Gurney and the 1894 Sidgwick report, the authors concluded from their surveys that non-pathological, veridical hallucinations do occur and that a correspondence in time between the occurrence of the apparition and the death of the person seen happened too frequently to be attributable to chance.

⁷ Stevenson (1987, 106-107) has since had to repeat this warning.

⁸ An apparition of a stranger or unrecognized figure -- whether in pathological or in apparently normal circumstances -- may or may not be veridical, but the veridicality cannot of course be determined. Differences in the features of pathological and known veridical cases may therefore only be distinguishing apparitions occurring in pathological conditions from those occurring in healthy states, and not veridical from non-veridical ones. Nevertheless, for the practical purpose of identifying and studying cases that can be shown to be veridical, it seems safe to assume provisionally that hallucinations of an unrecognized figure are not veridical. As I pointed out earlier in this chapter, however, Myers cautioned his readers to remember that a theoretical model of -- in this instance -- apparitions had to allow for the possibility that some non-veridical (or "weak") cases may in fact have a supernormal origin.

⁹ I remind readers of a point I noted in Chapter 6: Myers believed that the nature of this psychological link would be more subtle than kinship, apparent affection, or even acquaintance between the people involved, since there were cases involving people who were not emotionally close, were only slightly acquainted, or were even complete strangers (1884-1885, 100, 122).

¹⁰ As I also explained earlier (in footnote 21 of Chapter 6), Myers's conception of "experimental psychology" was far broader than it has since become.

¹¹ As I will explain further below, Myers's experimental methods for inducing sensory automatisms have their modern counterparts in sensory reduction techniques such as the Ganzfeld.

12 In mentioning in this chapter specific experiments that Myers or others carried out, my intent is only to show the kinds of experiments that Myers believed should be conducted and why he believed that kind of experiment might be important. My intent here is not either to defend or to criticize the validity of that particular experiment, and hence not to try to describe the experiment in any detail.

13 The pictorial rather than verbal nature of the apparent stimulus for this hallucination might support Myers's idea (described in Chapter 6) that the right hemisphere is involved primarily in such subliminal processes.

14 I remind readers here that for Myers the word "magical" -- which refers to supernatural agency -- was in a sense a pejorative one, since he believed that no phenomena (including, and even especially, those supernormal phenomena that the psychical researchers were trying to demonstrate) are supernatural. Here, by "almost magical," Myers meant to criticize those who would cursorily extend the hypothesis of sensory hyperaesthesia to explain any perception beyond normal sensory capacity.

15 The "mesmerizing" was done by "passes and occasional light touches" (Barrett, Gurney, Myers, et al., 1883b, 261).

16 Even such detection of unconscious muscular action, however, should be of interest to psychologists, both for shedding light on subtle influences on human behavior and also for drawing more carefully lines between normal perception, hyperaesthesia, and supernormal perception.

17 The Ganzfeld method now widely used in parapsychology is essentially a modern version of the crystal-gazing and shell-hearing techniques that Myers advocated for

psychological research, in that a uniform visual and auditory field is used to heighten internal imagery and focus the subject's attention on it. Attempts to induce externalized hallucinations among subjects in the Ganzfeld, however, might prove to be particularly interesting, as Myers had thought they might.

18 In these experiments, Mr. Newnham would write down questions while his wife, seated with her back to him, would write automatically. In 76 instances, the question was made known normally to Mrs. Newnham. In 309 questions, however, Mrs. Newnham was not made aware of the question or even its general nature, and yet in most instances (Myers does not give an exact figure) the answers were pertinent to the question asked. As Myers pointed out, the specific details of the content of the replies is of interest, particularly for allowing one to compare the replies automatically written with Mrs. Newnham's conscious thoughts. Yet "the leading and important fact...[is] that Mrs. Newnham's hand wrote replies clearly and repeatedly answering questions which she neither heard nor saw" (1903, 2:148; see also 1885b, 6-23).

19 Myers disliked the word "medium" and its derivatives. He dismissed it as an "intolerable" and "question-begging" term, since it involved the assumption that the person was "an intermediary" between two worlds, which was of course "just the question in dispute" (1890d, 669). Instead, he preferred the word "automatist," since it implied only that the phenomena were not conscious in origin (1890d, 669).

20 Myers himself came to believe strongly in the hypothesis of survival, for reasons that, I must confess, remain a mystery to me. Two papers in particular are puzzling because he seems to accept as evidence for survival precisely the kinds of phenomena that he had previously argued were wholly inadequate for that

hypothesis and implied nothing more than the automatist's own subliminal capacities (1893e; 1894b). On these occasions he thus seemed to violate his own often-expressed standards and criteria for judging phenomena; but his personal beliefs are, it seems to me, irrelevant in the present context. He may have concluded prematurely that he had found evidence sufficient to justify a belief in survival, but the problems and methods and criteria for judging explanations of phenomena which he outlined for psychology are still, in my view, valid and useful for addressing the general problem of the place of mind in the universe, as well as the related but more specific question of the survival of individual consciousness after death. Myers may, in other words, have prematurely concluded that he had arrived at his destination; but the correctness or incorrectness of that belief is irrelevant to the question of whether he pointed psychology in the right direction for ultimately reaching that destination.

CONCLUSION

CHAPTER 8

THE PLACE OF PARAPSYCHOLOGY IN MODERN SCIENCE

Objections to Parapsychology

Modern parapsychology, like Myers's work, is firmly rooted in the empirical method of observation. It would seem, therefore, even if those observations may be incomplete, inadequately made, or even wrong, that neither Myers's work nor modern parapsychology should be considered unscientific. What then are the roots of the antagonism -- often intense and even emotional -- with which many modern scientists react to parapsychology? The fundamental criticism of psychical research since its inception has been that, if psychical research is valid, then it would undermine all, or much, of Western science:

If the views of some of these men of the Psychical Research Society are true, we must give up doctrines which are the necessary resultant of the inductive study of mind of the past hundred years. If Mr. Myers is right, we have learned nothing from the method of concomitant variations or the clinico-pathologic method based on the modern doctrine of cerebral localization. (Hurd, 1898, 353)

Lange stated that "Were it possible for a single cerebral atom to be moved by 'thought' so much as the millionth of a millimeter out of the path due to it by the laws of mechanics, the whole 'formula of the universe' would become inapplicable and senseless" (cited in Prince, 1928, 7). In a comparable vein, Wundt (1879, 591) asked: "Whence is the scientific investigator to get courage and perseverance for his work, if the laws of nature...are approaching a point where they shall be done away with?"

More recent scientists continue to echo this basic theme:

The scientific status of extrasensory perception depends not on its factual status so much as on its status in a whole coherent body of science from psychology to physics. Scientists are not skeptical about extrasensory perception so much because they think the data are poor in ESP experiments, as because they are loath to give up an enormous complex of theory and data that would be challenged by uncritical acceptance of ESP as fact....The exist-

ence of mental phenomena totally independent of an underlying physical basis would upset not only current psychological notions but traditional physical notions as well. It would, for example, deny the universal validity of one of the greatest triumphs of nineteenth-century science, the laws of thermodynamics. (Deese, 1972, 72, 115)

Closely related to -- in fact, the obverse of -- the criticism that parapsychology would undermine Western science has been the accusation that it is a reversion to (and an attempt to revitalize) primitive, anti-scientific, dualistic supernaturalism, characterized by belief in miraculous, capricious events that interrupt and temporarily suspend the natural, law-abiding order. Huxley (1892, 3-4) contrasting naturalism and supernaturalism, described supernaturalism as the "infantile and untutored" belief in an "intangible and mysterious world" above the "orderly world of Nature" and characterized by "intermittent and capricious events." He then contemptuously dismissed "the primitive dualism of a natural world 'fixed in fate' and a supernatural, left to the free play of volition." Similarly, critics today (e.g., Zusne, 1985) repeatedly contrast the "irrational", "superstitious", "primitive", "non-natural" or scientifically naive, "magical" thinking of those sympathetic to parapsychology with the scientific thinking of those who understand that "scientifically acceptable" processes must "be anchored in physical reality" and that causal relationships involve the "transfer of [physical] energy between two systems" (686-87). Huxley was ultimately forced to construct his own "primitive dualism" of Nature and Society -- the former characterized by law, the latter by volition (e.g., Huxley, 1888/1898). And Zusne admits that "informational [i.e., subjective, mental] processes, although they are not energetic themselves, can trigger energetic events" (686; my italics) -- apparently not noticing that in this important sentence he has restated (and bypassed) the interaction problem of classical dualism (that is, how non-energetic processes can trigger energetic ones), has contradicted his own assertion that causality involves transfer of physical energy, and has begged the entire question that gave rise

to psychical research, namely, what does this causal relationship between informational (mental) and energetic (physical) processes imply about the adequacy of the "scientific" (that is, physicalistic) world view?

For Huxley, Zusne, and countless others, however, the important issue has been to leave no room for doubts about which are the forces of good and which the forces of evil in the battle for people's minds. Any deviation (real or ascribed) from the accepted world view of science is intolerable -- even if it might contain some grain of truth. Wundt (1879), for example, arguing (erroneously) that the phenomena studied by psychical research¹ require "that natural Science shall abandon the presupposition of a universal causality" (583), concluded that, whether or not the phenomena are real, they should be suppressed because they awaken "the corrupting effects of superstition" (592), that is, the irrational belief in supernatural forces or events contravening the natural order. Patrick (1898) likewise argued that, although scientists may someday affirm the hypothesis of survival after death, "the advancing of such hypotheses by psychologists can only serve to further the cause of superstition" (577). Jastrow (1889) insisted that the possibility that there could be "a true but small foundation-stone hidden beneath this rubbish-heap [of Spiritualism]" (732) was outweighed by the necessity to educate the public about the extent of the rubbish-heap. Knowledge, in short, took a back seat to destroying the enemy, superstition.

The belief that psychical research constitutes a reversion to supernaturalism and, if valid, would undermine and invalidate the rest of Western science is based on the belief that the essence of science is the particular world view with which it is identified -- that world view being that only physical, not mental, phenomena are primary causes. As Mackenzie and Mackenzie (1980) have so eloquently argued, critics of psychical research object to it, not because it attacks specific current scientific theories but because it (supposedly) attacks the principles of determinism and rationality on

which the very existence of science is assumed to depend:

The scientific revolution required an a priori conception of the world as a self-contained mathematico-physical system...[as] a condition of the intelligibility of nature. (Mackenzie and Mackenzie, 1980, 140)

Psychical research, on the other hand, was and is

a direct and continuing reaction against the exclusion of uniquely mental or otherwise physically irreducible qualities from the "real" world...[and seeks] to demonstrate more or less publicly the existence and causal efficacy of some kind of irreducible nonmathematico-physical elements in the world. (Mackenzie and Mackenzie, 1980, 148)

If, in fact, science is equivalent to the current world view of most scientists, then psychical research would, as feared, undermine Western science. But psychical researchers such as Myers saw the situation differently: "We wish distinctly to say that so far from aiming at any paradoxical reversion of established scientific conclusions, we conceive ourselves to be working (however imperfectly) in the main track of discovery" (Myers, 1886b, 1:xxxvi). To them, the objection that psychical research would undermine Western science was fully comparable to the Lord Chancellor's response to a 1902 speech by Earl Russell introducing a reform to the British divorce laws: Although Russell's speech was "a model of temperate, rational discourse," the Lord Chancellor vehemently denounced it as "an attempt to abolish the institution of marriage" (Hynes, 1968, 189). Like the divorce reform laws, psychical research was intended to improve and strengthen -- not abolish -- the institution it was said to threaten. Behind psychical research was an undeniably major question for modern science: Have scientists examined the phenomenon of volition, or mental causality, closely enough and thoroughly enough to conclude that mind is fundamentally a dependent, emergent property of matter, or should they keep open the alternate possibility that both mind and matter are fundamental properties of nature, interacting in ways more complex than, on the basis of ordinary experience, we now perceive? Such major questions are not a threat to science, but, in contrast, its lifeblood. Myers believed

that, if mental phenomena are primary causal phenomena, acknowledging their causal efficacy would not undermine anything that has been learned about physical processes, but it would be a first step toward learning the circumstances under which mental processes operate, toward specifying more exactly the circumstances under which physical ones operate, and toward learning how the various processes interact. Describing the limits to the range and applicability of a particular law or principle of science is not the same thing as invalidating it; one has instead gone beyond more or less vague assertions about the "universality" of a law to demonstrate more explicitly the parameters within which it is in fact universal. A ball dropped in space and floating aimlessly does not invalidate the principle that a ball dropped on earth falls to the ground; it defines some of the limits of the conditions of gravity.

Myers's work was therefore based on three major premises: that most psychological phenomena fall within well-recognized parameters of sensorimotor functioning, not because these are the only forms psychophysical functioning can take, but because they are the ones best adapted to meeting the needs of the organism; that there nevertheless are numerous psychological phenomena, both normal and unusual, suggesting that there are principles related to mental functioning that scientists have yet to discern and describe; and that the framework of science can be expanded to accommodate principles even radically different in kind from those now recognized, without thereby destroying the present framework.

As Mackenzie and Mackenzie (1980, 132) point out, however, this line of argument

has had little effect. There are few recorded instances of critics snapping their fingers in vexation, saying, "Of course, we don't know all the laws of nature! Why didn't I think of that?" and changing their attitudes to parapsychology accordingly. There is clearly more behind [critics' objections] than a momentary forgetting of the incompleteness of our knowledge.

According to Mackenzie and Mackenzie, what is behind the objections is the belief that psychical research violates

the principles of determinism and rationality from which science takes its being, that it "constitutes an attack... on the conviction of the accessibility of the world to human reason" (1980, 134). Such an accusation, however, is again reminiscent of the Lord Chancellor's remarks. Psychical researchers such as Myers could not be accused of promoting ideas undermining rationality because they -- in distinct contrast to their opponents -- assumed that the phenomena they studied, the circumstances in which they occur, and the laws or principles by which they operate could ultimately be described and understood. Moreover, they were not so much attacking determinism per se as they were a particular conception of determinism that limited primary causal factors to physical processes. As a scientifically oriented thinker, Myers assumed that, if mental phenomena are causal phenomena, they operate with enough regularity to allow scientists to discern the conditions under which they are causal and to identify laws or principles describing those conditions.

G. R. Price (1955) illustrated the objections of many scientists to psychical research by contrasting a "scientific" phenomenon and a "magical" (or parapsychological) phenomenon in two hypothetical scenarios. In the former, a physical apparatus activated by the sound waves of a person's voice causes a table to rise in the air; in the latter, a person's mental desire that the table rise causes it to do so. According to Price, "in the scientific process, each successive detail is provided for. In the magic process, there are just the wish and the result, and all the intermediate steps are omitted" (1955, 361). In fact, however, the difference between the two situations may be only that Price's "scientific" event has been more fully described than the "magical" event. All the phenomenal steps in the "scientific" event have been described -- the sound waves, the speech apparatus, the switch, the electromagnet, the iron plate. As empiricist philosophers and scientists since Hume have pointed out, however, any such causal sequence is simply a descriptive one, an observation that X is followed by

Y. At some basic level, we cannot say how or why X is followed by Y, only that one is followed by the other. In Price's "magical" event, there may yet be many circumstantial details -- "all the intermediate steps" -- still to be identified before we can describe the event in as much detail as we can the first event; but, at some basic level, a mental process occurring under the appropriate conditions may be just as much a primary "cause" for the table to rise as a physical process occurring under the appropriate conditions.

It is clear from Price's account, therefore, that his objection to psychical research, like that of most scientists, is ultimately not that it undermines either determinism or rationality -- a charge completely at variance with the intentions and beliefs of most psychical researchers -- but that it undermines the assumption that all causes are fundamentally physical ones:

Parapsychologists have...put themselves in a double bind. If they look hard for a causal mechanism, they might find one and be disappointed. If they fail to look at all, they cannot view themselves as scientists. (Neher, 1980, 294-295)

For most scientists, the only "causal" explanation is a physical one. The idea that mental phenomena might also be primary causal mechanisms is for them an inherently "unscientific" one, and thus parapsychology is inherently unscientific.

The incompatibility of its [psychical research's] theoretical orientation with that of the natural sciences is as basic as the incompatibility of mind and matter -- not surprisingly, as they have the same source. (Mackenzie and Mackenzie, 1980, 151)

All scientists are clearly aware of "the incompleteness of our knowledge," and many, like Price, readily agree that "new forces can be fitted into a scientific scheme of things" (Price, 1955, 361). Nevertheless, there is still the assumption behind resistance to psychical research that qualitatively speaking, as it were, scientists do know all there is to know. The assumption is that future information, principles, and laws discovered will not differ in kind from those derived from the basic principles of modern science: that all phenomena

derive from the action, interaction, and evolving complexity of physical processes. Both psychological and parapsychological phenomena suggest that mental factors, especially volitional, purposeful ones, may be primary causal factors. What scientists mean, therefore, when they say that psychical research undermines science is that psychical research undermines the physicalist assumptions of modern science.

For psychical researchers such as Myers, however, the method of science is the sacrosanct aspect of it; as Mackenzie and Mackenzie (1980, 162n) insisted, "the methods of science are objects of confidence in themselves. The world view which supports them is still influential, but not, we think, omnipotent." One of the most important beliefs on which psychical research was founded -- belying the accusation that it is an attempt to undermine science and rationality -- is that, by continually questioning the assumptions and principles accepted by most scientists and subjecting them to new phenomena and new perspectives, the body of knowledge called science can only be strengthened. If the assumptions, principles, and world view associated with current science are accurate and complete, the method will confirm this; but if they are in some sense incomplete -- or even wrong -- defining science in terms of them will ultimately weaken science by limiting it and its ability to right itself.

Definition of Parapsychology

Another major and frequently expressed objection to parapsychology has been that it is a field defined negatively (e.g., Blackmore, 1988; Boring, 1966; Flew, 1985). Most parapsychologists agree that the field is the study of phenomena that appear to violate the Basic Limiting Principles, as outlined by Broad (1953).² By studying phenomena that seem not to fit these principles, parapsychologists are said to be interested only in the "unexplained" or the "mysterious." As one critic explained, "the current upsurge in interest in the paranormal is, in part, motivated by curiosity about the unknown" (Alcock, 1981, 35). One might well ask what it

is that motivates any science if not curiosity about the unknown; but a more serious complaint is that, because parapsychology is defined negatively, then "parapsychology is an ever-shrinking field" (Blackmore, 1985, 440; see also Jastrow, 1900, 47-77). As soon as a phenomenon is "explained," or shown to conform to Broad's Basic Limiting Principles, it is said to be no longer of interest to parapsychologists:

As soon as knowledge accumulates concerning a previously inexplicable experience, parapsychologists seem to lose interest -- evidently because the mystery has waned. For example, as our knowledge accumulated concerning the processes involved in hypnosis, the interest of paranormal researchers faded away. (Neher, 1980, 294)

Palmer (1986) has tried to move parapsychology toward a positive definition by distinguishing between the primarily negative task of studying anomalous experiences for which there is as yet no explanation and the positive task of studying "a theory or model built around a hypothetical paranormal process or principle" (116). Nevertheless, many modern parapsychologists as well as critics continue to define the field negatively as the study of particular types of phenomena that seem opposed to Broad's Basic Limiting Principles. As a result, some parapsychologists have begun to suggest that the field be defined primarily in terms of anomalous phenomena, that is, as the study of phenomena that appear to violate Broad's Basic Limiting Principles, regardless of whether there is ultimately some "paranormal" explanation or not (e.g., Blackmore, 1985, 1988; Irwin, 1989). This approach reflects a general tendency among many modern parapsychologists, noted by Mackenzie and Mackenzie (1980, 157-163), "tacitly to drop the theme of opposition to other sciences" (159). Like their colleagues in 19th-century (and later) psychology, such parapsychologists reflect a tendency to be more concerned with acceptance by the scientific community than with basic theoretical questions that gave rise to the field in the first place. Like psychologists, in their eagerness to be accepted by the larger scientific community, parapsychologists who define the field primarily as the study of certain

anomalies seem to be backing off from the unique position of the psychological sciences to question the adequacy of assumptions inherited from the physical sciences. In losing sight of the larger questions and issues, they seem to be contenting themselves with ever smaller questions, ever more limited and fragmented subject matter, and ever more trivial research. In short, parapsychology, like psychology, seems in danger of becoming a mere descriptive endeavor, not a theoretical science.

If parapsychology is "an ever-shrinking field," it would seem to be because parapsychologists themselves have lost sight of the larger questions that define and give coherence to the field, not because phenomena once considered a part of psychical research have been "explained." Hypnosis is a frequent example cited by those who think that parapsychology shrinks as science advances; the above quotation from Neher (1980, 294-295) is just one instance (see also, e.g., Blackmore, 1985, 440). Yet, as I explained in the previous chapter, Myers understood clearly that "suggestion" was only a further description of the phenomena of hypnotism and in no way an explanation of them. Claims such as Neher's (1980, 295) that "we can now understand hypnosis, in part, as a conditioning phenomenon" similarly disguise scientists' ignorance about the essential mechanism underlying hypnosis. I repeat Andrew Lang's cautionary remark that "to 'explain the explanation' is the task for the future" (Lang, 1911, 546).

Myers, however, understood psychical research to be a much broader undertaking than the study of anomalous phenomena that needed explaining. The phenomena were interesting for a particular reason: The field was conceived as the study of a particular problem and not as the study of a particular body of unexplained phenomena, and that problem was the fundamental one of whether mental processes are derivative, and hence secondary to physical ones, or whether they are primary causal properties. Particular anomalous phenomena were interesting because they suggested that mental phenomena can be primary causal processes. The emphasis was thus clearly on

the examination of "a hypothetical paranormal process or principle" -- that "paranormal" principle being, in essence, mental causality.

The definition of psychical research was therefore, broadly, the empirical study of the causal relationship between mental and physical phenomena. Myers saw no categorical distinction between psychology and psychical research because the latter was simply that branch of psychology that sought to maintain and promote the study of one of psychology's fundamental questions, when psychologists themselves renounced it. By this definition, such problems as psychosomatic medicine, hypnosis and suggestion, and hysteria and multiple personality are well within the domain of psychical research; such "anomalous" phenomena as UFOs, numerology, or cryptozoology are not. The exclusion of the latter topics from the field is based on an explicit definition of the field; they are not excluded "essentially from political motives" designed to improve parapsychology's "tenuous status as a science" (Irwin, 1989, 5). Anomalous phenomena violating Broad's Basic Limiting Principles figure prominently in psychical research because, as Myers pointed out, they are phenomena in which the ordinary functioning of mind and matter appears to be altered, and as such they have the most potential for providing new insights into the problem. Nevertheless, despite the attempts of psychologists to ignore it, the problem of the nature of mind lurks behind all psychological phenomena, normal as well as anomalous. Myers thus had a clear sense of the close relationship between psychology and psychical research, because he understood that psychical research was attacking, not just the problem of certain anomalous and unexplained phenomena, but the much more general and important problem of the nature of mind and its relationship to matter.

Other scientists and psychologists, however, have had less than a clear sense of the relationship between parapsychology and psychology or the rest of science, because most of them have assumed that the problem of the relationship of mind and matter has, in essence, been

solved.³ Even among those increasing numbers of psychologists today who reject both dualism and reductionist materialism or physicalism for a new "mentalism" that acknowledges the irreducibility and functional role of mental events, there remains the unquestioned assumption that mind is a derivative of matter and thus ultimately dependent on it. They are, in other words, materialists as Maudsley defined materialists: "those who maintain that mind is an outcome and function of matter in a certain state of organization" (Maudsley, 1879, 667). Neisser, for example, a leader in the new cognitive psychology, probably speaks for most psychologists: "I do not doubt that human behavior and consciousness depend entirely on the activity of the brain, in interaction with other physical systems. Most readers of this book will probably have the same prejudice" (Neisser, 1967, 5). Hebb considers the belief that "mind and thought and consciousness are physical activities, functions of the brain", to be "a good working assumption" for psychologists; it is, he says, "correct scientific procedure" to assume that "the idea that there are two totally different kinds of existence, mind and matter, ... is wrong" (Hebb, 1980, 7, 15, 3). Sperry, arguing for the idea that mind is an active, causal agent, nevertheless assumes that mind is an emergent property of matter and that it is no longer "a question of whether conscious experience is tied to the living brain, but rather to what particular parts of the brain, or to which neural systems and under what physiological conditions" (Sperry, 1977, 241). Even the editors of a book on the relations between psychology and the neurosciences concluded ("after several months of reading"!) that the theoretical problem of the relation of mind and brain "had few if any implications for practicing experimentalists" (LeDoux & Hirst, 1986, ix).

In sum, in accordance with the scientific principle of continuity and uniformity in nature, most modern scientists have rejected the old dualism that supposedly segregates mind and matter as two independent substances and have adopted what seems to be the only alternative,

namely, a view of mind-body as a single, unitary phenomenon with mind as the function of matter in a certain state of organization. As a result, most psychologists and other scientists who consider the problem of mind have increasingly taken a rationalist, rather than an empirical, approach to psychology. They have, in other words, taken a major theoretical position, derived from the physical sciences, as an assumption upon which psychology is to be built. But is this, in fact, as Hebb thinks, "correct scientific procedure"? As Beloff and other psychologists have noted, "the numerous false starts, the frequent lack of direction, the morass of undigested facts" suggest that scientific psychology has had inadequate theoretical guidance (1962, 16; see also, e.g., Deese, 1972, 63-64; Kline, 1988):

To note that the nineteenth century produced an experimental psychology is not the same as asserting that it produced a scientific psychology....[W]hile it [experimentation] is, perhaps, a necessary corollary of science, it is not sufficient to establish an enterprise as scientific....[A]ny number of clever experiments may be conducted without ever summing to a scientific system,

if the field in question remains only a "purely descriptive, atheoretical program" (Robinson, 1978, 105). The theory that "mind, mental entities, and mental phenomena exist as ultimate constituents of the world" may have been too readily discarded (Beloff, 1962, 11).

A more adequate -- and ultimately productive -- approach to the problem of mind might be, instead, to examine psychophysiological phenomena empirically in the light of both general competing theories, with the goal of moving beyond the perhaps too-limited perspective of each and toward some more comprehensive view, or tertium quid. Myers repeatedly argued that "something is gained if, having started with the preconception that 'all which is not A is B,' we have come to the conclusion that our own subject matter is neither A nor B, but X" (Myers, 1890a, 248). A view of mind and matter as in some sense functionally unitary does not necessarily imply that mind is a secondary, derivative property of matter. Conversely, a view of mind as a primary causal phenomenon

does not necessarily imply that mind is independent of and exists apart from matter. As Myers understood, psychologists' growing knowledge that mind is not what it appears to "common sense" to be, together with physicists' growing knowledge that matter is also not what it appears to "common sense" to be, suggest that mind and matter may interact in ways more complex than they now appear from our normal, "common-sense" perspective to do. Myers cautioned that "our notions of mind and matter must pass through many a phase as yet unimagined" (1886e, 179). A contemporary philosopher similarly suggested that "it seems to me...likely...that mental-physical relations will eventually be expressed in a theory whose fundamental terms cannot be placed clearly in either category" (Nagel, 1974, 450).

The importance of parapsychology, or psychical research, to science is therefore two-fold. First, it recalls psychology to its fundamental questions about the status of mind and mental causality in the physical world. And, second, it recalls to psychology and to all science that science is -- or should be -- empirical rather than rationalist, in the sense that it is most fundamentally a method rather than a world view. The temptation to maintain a world view at all costs derives from the natural function of all perception, which is to systematize and order experience; but it is a temptation that must be resisted if science is not to degenerate into dogma:

In spite of the continued hints which nature gives us to enlarge our conceptions in all kinds of unlooked-for ways, the instinct of system, of a rounded and completed doctrine, is apt to be too strong for us, and a determined protest against premature synthesis is as much needed now as ever. (Myers, 1889j, 392)

If parapsychology does nothing more than continually shake complacent assumptions about fundamental questions concerning mind, consciousness, volition, that alone is not an insignificant contribution to science. Ironically, if modern science is in danger of being undermined, it is not by parapsychologists who assume that the essence of science lies in its methods, but by

those scientists who assume that the essence of science lies in a particular world view.

CHAPTER 8

ENDNOTES

¹ In 1879, when Wundt wrote this article, psychical research had not yet been institutionally organized -- an event that did not take place until 1882, when the SPR was founded. Nonetheless, Wundt was here referring to the study, by scientists, of alleged mediumistic phenomena, and such phenomena were among those that psychical researchers studied.

² These Basic Limiting Principles fall into four categories: (1) the General Principles of Causation, which state that there is a linear sequence of causes and effects; (2) the Limitations on the Action of Mind on Matter, or the assumption that a mind can produce changes only in its associated brain; (3) the Dependence of Mind on Brain; and (4) Limitations on Ways of Acquiring Knowledge, or the assumption that knowledge can come only from sensory experience or inferences based on sensory experience (Broad, 1953, 9-12).

³ At least one parapsychologist must be included in this statement as well. Blackmore (1988) has decided that "materialism, in one form or another, is here to stay.... [W]e need courage to accept what has been learned in other sciences, that probably conscious experience is totally dependent on our brains" (56, 58). But "courage" does not seem to be the appropriate word to characterize evasion or abandonment of a major theoretical problem that has never been attacked empirically to the extent required for a problem so complex as the relationship of mental and physical phenomena.

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