

When innovators spoke of the new psychology, many of them thought of a new philosophy. Envisioning for themselves conventional roles as moral philosophers, they argued that scientific competency rather than theological training should be made the chief criterion for occupancy of such academic niches. The preceding chapter has outlined the intellectual crisis that made such arguments compelling and upon which the new philosophers capitalized. Training in physiological psychology represented the most authoritative badge of scientific certification. Though the evolutionary controversy prompted its implementation within the American college and university, in many respects physiological psychology constituted a simple extension of traditional philosophical inquiry. As epistemologists bound to the assumptions of British empiricism, philosophers had always been preoccupied with problems of sensation and perception. Physiological psychology promised experimental insights into certain fundamental philosophic problems. As such, undoubtedly it would eventually have been assimilated into American academic philosophy without the catalytic challenge of Darwinism, albeit with less urgency and perhaps more caution. As evidenced, however, in the careers of many Americans who studied at Leipzig, the new psychology rapidly expanded beyond the boundaries of both philosophy and Wundtian experimentalism to assume the cultural function of a practical, empirical behavioral science. In other words, the new psychology adopted the cultural function that had most recently belonged to phrenology, the nineteenth-century psychology vehemently opposed to the mental science of the Common Sense Realists that physiological psychology sought to bolster. The enlargement of academic psychology's scope might likewise have occurred without the influence of evolutionary naturalism, but here again Darwin's multifaceted influence on American science and social thought was instrumental. Evolution became the vehicle upon which the social ideology and practical aims of an intellectually indefensible phrenology—the science of individual differences—rode into the academic territory occupied by the science of mind.

Gall and the Phrenological Movement

A century before Watson inaugurated his particular brand of behaviorism, Franz Joseph Gall (1758–1828) embarked upon the first sys-

CHAPTER 5

Evolution, Society, and the New Psychology

All natural sciences aim at practical prediction and control, and in none of them is this more the case than in psychology to-day. We live surrounded by an enormous body of persons who are most definitely interested in the control of states of mind, and incessantly craving for a sort of psychological science which will teach them how to act. What every educator, every jail-warden, every doctor, every clergyman, every asylum-superintendent, asks of psychology is practical rules. Such men care little or nothing about the ultimate philosophic grounds of mental phenomena, but they do care immensely about improving the ideas, dispositions, and conduct of the particular individuals in their charge.

—William James
"A Plea for Psychology as a 'Natural Science,'" *Philosophical Review* (1892)

Psychology . . . is a . . . branch of natural science. Its theoretical goal is the prediction and control of behavior. . . . If psychology would follow the plan I suggest, the educator, the physician, the jurist and the business man could utilize our data in a practical way. . . . Those who have occasion to apply psychological principles would find no need to complain as they do at the present time. . . . One of the earliest conditions which made me dissatisfied with psychology was the feeling that there was no realm of application for the principles which were being worked out in content terms.

—John Broadus Watson
"Psychology at the Behaviorist Views It,"
Psychological Review (1913)

tematic scientific program of behavior research. The Viennese-trained physician and anatomist supported the doctrine of the cerebral localization of mental functions. Deriving his list of faculties or mental powers (innate propensities as categorically variable as self-preservation, duty, love, and imitation) from the Scottish Realist Thomas Reid, he attempted in the first quarter of the nineteenth century to prove that specific regions of the brain were responsible for objectively describable manifestations of human character. While his peculiar assumptions had been largely discredited by the 1870s, Gall and the popular phrenological movement to which his name has become unfairly attached subtly but decisively influenced the new psychology in America.¹

Four principal propositions dominated Gall's major works: the shape of the skull conformed to the shape of the brain; mind can be analyzed into discrete faculties or functions; these faculties are localized in specific portions, or "separate organs," of the brain; finally, behavioral traits can be explained by reference to the development of brain protrusions and can be predicted by the measurement of corresponding cranial contours, or "bumps."² Because each of these propositions proved false, Gall's place within the chronicles of scientific progress lies significantly beneath the range of his vision. Recognized as "one of the most brilliant anatomists of his day" for improving surgical techniques that left discrete convolutions of the brain intact, Gall the biologist is thus recalled for his technical rather than for his theoretical contributions.³ For correctly surmising that the brain is the organ of mind, Gall the psychologist is merely credited with leaving the science he misdirected "free for all the progress that resulted in physiological psychology."⁴ Such a conclusion is more useful for its irony than for its aptness, for the physiology upon which physiological psychology was based proceeded in a direction Gall lived long enough to deplore.

As a morbid anatomist seeking to allocate specific instincts and faculties to specific portions of the cerebral hemispheres, Gall had to contend with the sensorimotor physiologists—particularly with Pierre Flourens—whose findings failed to confirm Gall's doctrine of localized specificity of function. Flourens's improved operative procedures owe a great deal to Gall's own techniques and to his criticism that prevailing methods of vivisection amounted to uncontrolled "mutilation."⁵ Gall

argued that, before any such physiological experimentation could affirm or deny his hypothesis, it must meet certain criteria. According to Gall, the experimenter must first "be able to limit the entire effect of the lesion to the special region of the brain on which the experiment is made. For if the shock of the operation, the haemorrhage, the inflammation, extend to other parts, what conclusion can be drawn?"⁶ Conversely, Gall continued, one must be able "to ascertain whether the animal whose brain is mutilated, an animal agonized by pain and fear, were in a condition to exhibit those propensities, instincts, or faculties connected with the portions of the brain that were left uninjured." Gall the naturalist realized that confinement alone often extinguished instinctual proclivities: "The elephant will not pair in captivity; the nightingale's song ceases."⁷ The scalpel and the cage brought the observer into closer contact with the organism that he sought to examine while simultaneously preventing the subject from exhibiting those manifestations of innate proclivities which the scientist sought to explain.

Technical refinements and methodological sophistication would eventually blunt the impact of Gall's exceedingly accurate clinical thrusts.⁸ He added, however, a third condition for successful experimentation. Most important, he maintained, "the inquirer should have a clearly defined conception of what he is looking for."⁹ In this regard, the physiologists and even the physiological psychologists who came after Gall met his ultimate challenge by abandoning his particular objectives.

Gall admitted that neurophysiology—employing the successful new paradigm of sensorimotor physiology, the Bell-Magendie law—had obtained certain positive results in localizing in the cerebrum and medulla oblongata certain functions relating to "irritability, sensibility, the function of the viscera, voluntary motion, respiration, etc."¹⁰ An avowed antisensationalist, he feared that such successes might tempt the experimenter to forsake the difficult search for the locations of psychological functions that underlie significant patterns of behavior in favor of a reductionist inquiry that claimed to explain mental life by reducing it to mere sensorimotor functions. Unable to comply with Gall's rigorous criteria, experimentalism did precisely that. Robert Young has compellingly argued that

istic psychologists as Cattell, Gall indirectly influenced John Broadus Watson and the behaviorist movement generally.

In his *Treatise of Human Nature* Hume declared:

Moral philosophy has this peculiar disadvantage which is not found in natural [philosophy]. . . . When I am at a loss to know the effects of one body upon another in any situation, I need only put them in that situation and observe the results from it. But should I endeavor to clear up in the same manner any doubts in moral philosophy by placing myself in the same case with that which I consider, 'tis evident this reflection and premeditation would so disturb the operation of my rational principles as must render it impossible to form any just conclusion from the phenomenon. We must, therefore, glean up our experiments in this science from a cautious observation of *human life*, and take them as they appear in the common course of the world, by *men's behaviour* in company, in affairs, and in their pleasures. When experiments of this kind are judiciously collected and compared, we may hope to establish on them a science which will not be inferior in certainty, and will be much superior in utility, to any other of human comprehension.¹³

Comte, who acknowledged his profound debt to Gall, argued in like manner that the "so-called psychological method . . . is in principle invalid. . . . *Internal observation* engenders almost as many divergent opinions as there are individuals to pursue it."¹⁴ Like the physiological method of vivisection, the philosophical method of introspection interfered with the phenomena under observation.

When the phrenological movement arrived in the United States, this aspect of Gall's positivism remained one of its most tenacious features. Brahmin social reformer Samuel Gridley Howe explained to the Boston Phrenological Society in 1836 that

most other metaphysicians . . . hold up consciousness as a mirror before them, and think that they see there an image of man which they attempt to describe; but alas! the mirror is so narrow it will admit but one image at a time, and that the image of him who holds it up. It must be, that, while men judge the mental emotions, dispositions, and characters of others by the consciousness of what passes within themselves, they must ever err.¹⁵

James McKeen Cattell was decisively influenced by the positivism of Comte. When he declared before the International Congress of Arts and Sciences at the 1904 St. Louis Exposition that "It is usually no more necessary for the subject to be a psychologist than it is for the vivisectioned frog to be a physiologist," he was elaborating a conception

cerebral localization had become scientific only by abandoning the goals which Gall had laid down at the beginning of his research: to relate the significant variables in the character and behavior of men and animals to the functioning of the brain. The sensory-motor school was undoubtedly right in rejecting Gall's faculty psychology. However, in being grounded on a secure physiological basis, the sensory-motor tradition cut itself off from the approach to psychology which was the most important aspect of Gall's work. . . . In rejecting Gall's answers, it lost sight of the significance of his questions. Insufficient attention was paid to what the sensory-motor elements should be required to explain.¹¹

Physiology substituted small questions that could be answered for large ones that could not.

Physiological psychology emerged from this physiological tradition that had explicitly abandoned Gall's goals. Its scientific elegance likewise stemmed from its ability to eschew the consideration of variables it could not control. Textbook histories that equate experimental psychology with the new psychology in general and that stress patterns of linear cumulative progress thus find in phrenology little more than a defunct progenitor of scientific psychology, a movement that died so that true science might live. However, looking beyond the laboratory to broader coexisting programs of empirical endeavor within psychology, one finds that phrenology invested the new psychology with ample precedent. Phrenology engendered a systematic approach to psychology that was objective in method, functional in approach, practical in scope, and concerned with the assessment of individual differences. As such, it crystallized in certain sectors of American thought a conception of psychology diametrically opposed to physiological psychology's introspective, structural, ascetic science of the generalized human mind.

The objectivism of Gall's comparative empiricism represented a direct challenge to the introspective method of philosophical psychology that Wundt, in the process of refining, would resuscitate. Gall recognized that the introspective study of mind dominated by Common Sense metaphysicians and moral philosophers jeopardized psychology's chances of becoming a biological science. He insisted that "the most sublime intelligence will never be able to find in a closet, what exists only in the vast field of nature."¹² Gall's objectivism had a powerful precursor in Hume and a forceful proponent in Comte. By way of such positiv-

of psychology rivaling the introspection of Wundt.¹⁶ The University of Chicago's J. B. Watson, who claimed that he owed more to Hume than to Dewey, heard Cattell's speech. According to his autobiography, he began that year to complain to his colleagues about the superfluosity of using introspective observers in psychological experiments.¹⁷

From his home base at the University of Missouri Max Meyer did not have as far to travel to St. Louis as did Watson. Two years before his colleague's manifesto Meyer published his *Fundamental Laws of Behavior* in which he deprecated the "deep rooted habit of describing human behavior as dependent on subjective states, on states of consciousness,—a habit which still largely governs the sciences of human society, preventing them from throwing off the shackles of subjectivity." Meyer scornfully attacked introspection and pleaded for the objective study of human behavior in psychology. "Why," he complained, "do we think of humanity almost exclusively in terms of thought, although our experience contains no other person's thought, but only his behavior?"¹⁸ The Missouri behaviorist called for a "Psychology of the Other One," the title of his 1921 textbook.¹⁹ Three years later in his popular work *Behaviorism*, Watson repeated this call. He announced:

You will soon find that instead of self-observation being the easiest and most natural way of studying psychology, it is an impossible one; you can observe in yourself only the most elementary forms of response. You will find, on the other hand, that when you begin to study what your neighbor is doing, you will rapidly become proficient in giving a reason for his behavior and in setting situations (presenting stimuli) that will make him behave in a predictable manner.²⁰

Exactly a century before the publication of *Behaviorism*, Charles Caldwell had announced an identical program in his *Elements of Phrenology*.²¹

Wundt had, of course, supplied introspection with objective controls in an attempt to minimize the complaints of "the positivistic philosophers" who sought to seize psychology from the hands of metaphysicians and moral philosophers. His arguments in behalf of scientific introspection undoubtedly helped persuade those beleaguered academic moralists to incorporate physiological psychology into their in-

tellectual arsenal. But the increasingly vituperous assaults upon introspective methods voiced within academic psychology after 1910 cannot be explained simply in terms of internal anomalies within physiological psychology such as the failure of the Würzburg school to trace "imageless thoughts."²² It is best explained as the culmination of an entrenched and resilient tradition of objective psychologizing that had attained widespread recognition and forceful expression in the form of nineteenth-century phrenology.²³

In addition to the objectivist and, therefore, behavioral orientation, phrenology was also overwhelmingly functional. It was, in other words, more interested in activities than in experiences and viewed mind as the organ that accounted for the organism's biological and social adjustments to its environment. Here again Gall had posed a fundamental question that remained a focus of psychological problem solving: To what extent do the prevailing categories of human propensities—amativeness, ambition, aggression, etc.—reflect definite mental functions? Repeated Gall:

Point out to me the fundamental forces of the soul, and then I will undertake to find the organ of each and its position. I found the first problem surrounded by far more difficulties than the second.²⁴

In other words, before the vivisectionist could attempt to locate the organs of instinctual behavior, "the inquirer should have a clearly defined conception of what he is looking for." Recall that a century later Titchener had used an analogy drawn from experimental physiology to bolster his argument that the psychologist must attempt "a vivisection which will yield structural, not functional results. He tries to discover, first of all what is there . . . not what it is there for."²⁵ Gall had argued that before one could determine the organ of a function one must know the function of the organ and that this undertaking could be accomplished only by making a huge comparative analysis of behavior. One must observe man as a social creature, compare human behavioral traits with those of animals, sane individuals with lunatics, children with adults, intelligent people with stupid ones, and so forth. Once a large array of empirical observations had been accumulated, once comparative correlations permitted accurate delineation of discrete instincts or sets of instincts, then the anatomist could begin

identifying innate traits with specific cerebral protrusions. These endeavors must, of course, work together; but, contrary to Titchener's argument, the determination of function is logically anterior to the determination of structure.

Although the new psychology discounted phrenology's claim that instinctual traits could be located in divisible bundles of gray cells, it never discarded the comparative empiricism that Gall had invigorated. Particularly among social and animal psychologists, the search to find meaningful categories of instincts represents one of modern psychology's most dominant features.²⁶ William McDougall, the British social psychologist who taught at Harvard from 1920 to 1927 and who was among the first to define psychology as the science of behavior, was decisively influenced by phrenology, as Bernard Hollander has shown.²⁷ Watson's first textbook in comparative psychology relied on the doctrine of instincts while attempting to reduce their numbers.²⁸ His colleague and friend Robert Mearns Yerkes, who claimed that he was more interested in the study of behavior than of consciousness, adopted Gall's arguments about the dangers of vivisection and the extirpation of sensory modalities and preferred ethological observation of animal behavior as a basis for the study of instinct.²⁹ Yerkes' comparative work with human subjects, like Gall's, took place within psychopathic hospitals. Learning, the central problem of twentieth-century psychology, involved the determination of what is innate and what is acquired. The social and animal psychologists who laid the foundation for a systematic learning theory based their work on the comparative assessments of the relative capabilities of man and animal that Gall had established as one of psychology's basic methods.³⁰

Gall's effort to place psychology under the canopy of the biological sciences prompted him to stress the adaption of organism to environment. When James R. Angell formalized the "functional" position in psychology in 1907, he accentuated this same approach. Furthermore, he attacked the sensationalism of Titchenerian psychology in much the same manner as Gall had rebuked the sense physiologists of his day by arguing for the existence "of definite and distinct forms of mental action," or functions, which structural psychology had disregarded. The Chicago functionalist insisted that "even the much-abused faculty psychology is on this point perfectly sane and perfectly lucid." Angell

specifically defended this aspect of phrenological thought when he confessed that

mention of this classic target for psychological vituperation recalls the fact that when the critics of functionalism wish to be particularly unpleasant, they refer to it as a bastard offspring of the faculty psychology masquerading in biological plumage.³¹

One of Titchener's foremost students, Karl Dallenbach, made precisely this reference in the most polite and scholarly manner possible. Performing a historical exegesis of extant psychological literature, Dallenbach convincingly showed that the psychological usage of the term "function" derived directly from phrenology.³² When critics of behaviorism came in turn to refer to that program as a bastardization of functionalism,³³ they failed to note that what Watson had done was to combine psychology's functional approach with phrenology's objective procedures.

Objective observation of functional activities furnished an appropriate method for obtaining insights into individual differences, phrenology's central concern. Gall had argued that the tripartite division of faculties (reason, emotion, and will) employed by the Scottish philosophers pursuing a science of mind failed to account for widespread variation of human personality and behavior. The British psychologist Alexander Bain maintained, however, that in addition to a science of mind there was also a science of character. He declared that "the proper view to take of Phrenology is to regard it as a science of Character, accompanied with a theory of external indications."³⁴ If this general definition of phrenology is accepted, modern psychology cannot be said to have abandoned it.

William James, for example, never surrendered the aesthetic predilection for attempting to correlate psychological and morphological attributes. James considered phrenology "a useful help in the art of reading character" and, according to one of his like-minded students, "believed there was much truth in [it]."³⁵ The belief was not confined to the nineteenth century. In an uncommonly frank acknowledgment of intellectual lineage, William Sheldon admitted as late as 1940 that his personality theory based upon body typology descended "from a discredited ancestral phrenology."³⁶

Ultimately, however, historical analysis of intellectual lineage must be subordinated to an examination of ideological continuity. Viewed in the cold light on scientific verifiability, Gall's confutation was deserved. His tendentious empiricism, disavowal of contrary evidence, and casual reliance on the anecdotal categories of faculty psychology constitute a disregard of scientific method. Yet, seen in terms of scientific goals, the line of descent from phrenology to much of modern psychology is direct. In order to appreciate phrenology's continuing relevance it is necessary to look beyond the internal logic of "successful" scientific achievement to the external appeal of Gall's scientific intellect. The phrenologist sought to relate personality, temperament, and intellect to other objectively observable variables in order to establish a basis for the prediction and control of human behavior. Phrenology was objective, functional, behavioral, and concerned with individual differences because above all it sought to be practical. As the new psychology ventured to be useful, it adopted an identical stance.³⁷ Phrenology's chief popularizer in Britain, George Combe, complained that the Scottish Realists ignored "the obvious fact of different individuals possessing faculties in different degrees of endowment which fit them for different pursuits." Combe's vision of the social purpose of mental science derived from his mentor and Gall's student, John Gaspar Spurzheim, who suggested that "our interest in being acquainted with human nature, increases . . . as we feel the necessity of influencing those we direct."³⁸ Phrenology sought not only to predict behavior but also to control it.

Phrenological and behavioristic psychology both rose to prominence by offering themselves as sciences of social control. Cattell declared this essential purpose when he claimed that "Control of the physical world is secondary to the control of ourselves and of our fellow men."³⁹ Hall, who according to his biographer had always leaned toward behavioristic conceptions of his science, offered the new psychology as the answer to "the supreme problem of diagnosing each individual, and steering him toward the fittest place."⁴⁰ Max Meyer declared that a science of human control, such as envisioned by Luther Lee Bernard in his *Transition to an Objective Standard of Social Control*, would not arrive until "facts and laws of introspective psychology [had] been correlated with—replaced by—facts of behavior and its laws."⁴¹ And

Watson, of course, followed suit. Child study, eugenics, intelligence testing, psychometrics—in short, the whole range of activities subsumed under the banner of "human engineering" that occupied the majority of psychologists in the early twentieth century—sought to assess individual differences through analyses of human and animal performance.⁴²

The Phrenological Legacy

Because Gall's specific theories had been discredited by the time of the new psychology's ascendancy, modern psychology has managed to ignore its phrenological heritage. This policy of benign historical neglect seemed not only intellectually justifiable but professionally expedient, for phrenology had become the apotheosis of nineteenth-century psychological quackery, the province of the peripatetic mountebank and mail-order charlatan.⁴³ Phrenology involved an assumption that David Bakan regards as crucial to modern psychometric endeavor; namely, "that one can infer the nature of mental functioning on the basis of very little information collected in a very short space of time."⁴⁴ The promise of rapid psychological diagnosis drew hordes of believers to the New York City parlors of the firm of Fowler and Wells where "experts" measured vocational aptitude and marital compatibility by reading the skulls of their impressionable customer-clients.⁴⁵ The often told story of phrenology in America is a narrative of its vulgarization: of nickel pamphlets and dime charts, of transient lecturers whose credentials were as highly inflated as their claims, of wigs molded to simulate flattering phrenological features like so many cranial codpieces. A serious science had become a popular fad, and a new academic discipline could ill afford to acknowledge its indebtedness to the former without risking identification with the latter.⁴⁶

At the same time, however, phrenology's currency indicated the cultural indispensability of some sort of practical, predictive psychological science. Its promise captivated not only the pervious public and the evangelical reformer but also a more skeptical professional class yearning for a science aimed, in James's words, at "improving the ideas, dispositions, and conduct of the particular individuals in their charge."⁴⁷ From among this class came the groups who prompted President Jo-

siah Quincy to invite Spurzheim to Harvard in 1832 and who welcomed him at Yale. Physicians, ministers, public educators, asylum superintendents, and college professors composed the appreciative audiences that listened to Combe's lectures when he toured the United States from 1838 to 1840.⁴⁸ Sifting through the chaff of bluff, these groups extracted the kernel of phrenological promise: the conviction that psychology could and should be removed from the domain of introspective metaphysics to the realm of natural science where mental phenomena could be observed objectively and explained naturalistically. This set of assumptions remained intact long after phrenology was left, in the words of one commentator, "with the dry husks of its eccentricities—'bumps on the head.'"⁴⁹ With or without bumps, phrenology's theory of human nature and personality recommended itself to emerging professional groups searching for "positive knowledge" about such matters.⁵⁰

The vogue of phrenology among these groups underscores the centrality of psychological theorizing to a variety of social problems and to an array of institutional developments in the nineteenth century.⁵¹ Declining agricultural opportunities and industrial expansion encouraged unprecedented demographic shifts and urban growth. In the cities, America perceived increasing incidences of crime and insanity and required educational systems responsive to the task of industrial training. In the twilight of American gentility's ascribed cultural hegemony, emergent professional classes achieved status and vocational identity in the new urban society at least in part by promising to solve that society's most intractable problems.⁵² Many found in phrenology an etiological explanation of aberrant human behavior; a predictive technology for assessing character, temperament, and intellect; and a biological blueprint for social reform. The social engineers of the twentieth century, together with their patrons and subscribers, would demand no less of modern experimental behaviorism. When the new psychology arrived on the American stage, an eager audience anticipated the role it was to play. Gall, Spurzheim, Combe, and their followers had already written the script.

While the new psychology rejected the major aspects of phrenology's defunct framework of explanation, it never escaped the pattern of

expectations that phrenology engendered. E. G. Boring claims that, when America's psychological pilgrims returned from Germany,

with surprisingly little comment on what they were doing and probably but little awareness of it, they changed the pattern of psychological activity from the description of the generalized mind to the assessment of personal capacities in the successful adjustment of the individual to his environment.⁵³

What had actually changed was the locus of this supposedly new psychological program. In the 1850s, when railway companies considered employing phrenological scientists to assist the selection of trainmen in order to reduce accidents, the distinction between certifiable expert and enterprising charlatan was already thinly drawn.⁵⁴ Seven decades later, when urban electric railway companies, plagued by daily accidents, public indignation, and spiraling indemnity payments, sought similar psychological tests for their motormen, they knew exactly where to turn. Director of perhaps the best-equipped psychological laboratory in the world and distinguished professor in America's most prestigious university, Harvard's Hugo Münsterberg gladly undertook the investigation of their problem.⁵⁵ Psychology had not been transformed from the study of consciousness to the science of capacity; rather, utilitarian psychology had been transferred from the phrenological parlor to the psychological laboratory. The essential historical problem therefore involves an examination of how practical objective psychology obtained academic admission, of how this science of individual character, capacity, and conduct managed to coexist with (and eventually to displace) the traditional introspective science of the generalized mind that Wundt had experimentally rehabilitated.⁵⁶

In order to answer this question it is necessary to stage a preliminary inquiry into the American reception of the associationist tradition of British empiricism. While it is generally acknowledged that the new psychology derived its fundamental postulates from an associationism explicitly opposed to the faculty psychology of Gall,⁵⁷ what is not sufficiently appreciated is the extent to which British psychology retained an allegiance to the ideological program upheld by phrenology. When Americans looked abroad for a systematic psychology that incorporated mind and character, they followed the well-traveled in-

lectual trade routes to England, not to Germany, and found in the work of Alexander Bain, not of Wundt, an exemplary expression of the kind of psychology best suited to their needs.

The American Reception of Alexander Bain

In the 1850s Bain established his reputation as Britain's leading psychologist with the publication of his massive two-volume work, *The Senses and the Intellect* (1855) and *The Emotions and the Will* (1859).⁵⁸ In these volumes the Aberdeen radical provided associationism with a neurophysiological basis derived from the writings of Müller. Bain formally articulated the doctrine of psychophysical parallelism and tentatively accepted the principles of associationism. Nevertheless, he was a nativist rather than a sensationist, drew his insights and methods from biology rather than from philosophical psychology, and emphasized the physiological mechanisms that accounted for behavior. Relying on comparative observation of animal and abnormal behavior, he doubted that experimental psychology could isolate significant mental activities, as Gall had distrusted experimental physiology's ability to do the same. His emphasis on habit; his argument that purposeful activity issued from random, spontaneous movements preceding sensation; and his elaboration of the concept of "trial-and-error" learning presaged the work of Thorndike and Watson and of behaviorist psychology generally. Bain held that the aim of psychology was not merely to explicate the laws of consciousness but to diagnose human character. Sublimely oblivious to the work of Fechner, Helmholtz, and Wundt, the founder of the journal *Mind* advocated the use of aptitude tests and the measuring of individual capacities. While Bain's magnum opus is regarded historically as "the culmination of the British philosophical psychology," it was appreciated by contemporaries as the integration of the sciences of mind and character.⁵⁹

The extent to which the new psychology assimilated the program initiated by phrenology is evidenced in the American reception of Bain's classic monograph. In 1868 E. L. Youmans provided the introduction to the one-volume American edition of Bain's condensed work, *Mental Science*. Youmans wrote that

the later advances in Physiology have brought that subject into very close relation with questions of Mind. So important are the data thus contributed, and so intimate the mutual dependence of these subjects, that it is no longer possible to study Mind, in the true scientific spirit, without taking into account its material accompaniments. The method hitherto employed of studying mental phenomena by introspection is not superseded, but it has undergone an important extension. . . . The old system, which occupied itself with inquiries concerning mind as an isolated abstraction, threw but little light on the real psychical mechanism and workings of human nature. . . . But that the study of mind in its larger aspects, that is, the actual study of man as a thinking, feeling, and active being, must issue in the noblest applications, is beyond all rational question. In the whole circle of human interests there is no need so vital and urgent as for a better understanding of the laws of mind and character. . . . The acquirement of true ideas concerning human nature, the springs of its action, the modes of its working, and the conditions and limits of its improvement, is indispensable for all. Parents need it for the training of their children; teachers in the instruction of their pupils; employers in their intercourse with the employed; physicians in treating their patients; clergymen in the management of their congregations; judges and juries. . . . In short, whoever lives in social relations requires this knowledge for better and higher guidance in the whole sphere of life. The extension of the subject of Mental philosophy so as to include the physiological elements and conditions, and help to a better understanding of the constitution of man, is therefore an important step in the direction of our greatest needs. Human nature is no longer to be dealt with by the students in fragments, but as a vital whole. In place of the abstraction mind, is substituted the living being, compounded of mind and body, to be contemplated, like any other object of science, as actually presented to our observation and in our experience.⁶⁰

Youmans faithfully represented Bain's psychological agenda. Scientific psychology studies body and mind conjoined. Its subject matter includes personality, motivation, behavior, and adaptation. Its orientation is thoroughly functional; its purpose, eminently practical. Though it would be anachronistic to view this program as a criticism of Wundt's system, Bain nevertheless had elaborated an alternative to the tradition upon which the German philosopher built his physiological psychology.

The contrasts between the psychologies of Wundt and Bain illuminate the differences between physiological psychology and the new psychology in general. While the Oxford graduate Titchener, who

studied at Leipzig, hailed Wundt as "the first psychologist," another Oxford product, John Carl Flugel, who was trained entirely in England, calls Bain "the first psychologist."⁶¹ The difference of opinion reflects an important distinction. Wundt merits such recognition because he provided psychology with an experimental research design and a disciplinary organization, important considerations for a scientific group in its initial phases of academic institutionalization. But once those institutional inroads are reasonably assured, a discipline requires a conception of its purposes consistent with the expectations of a society on which it is dependent for support. Bain had delineated the aims and the scope of the kind of scientific psychology that ultimately prevailed. Youmans's accurate précis of Bain's practical program, as prescriptive as it is descriptive, represents a virtual blueprint of the disciplinary agenda pursued in America until Watson decisively excised Bain's equivocal considerations of the metaphysical problems and introspective methods that comprised so much of the psychological thinking of the mid-nineteenth century. Philosophical questions aside, Wundt's contribution rests in his ability to mobilize a scientific endeavor by prosecuting certain well-tested psychophysical and physiological techniques. He succeeded by industrializing in an intellectually credible fashion what psychology could actually accomplish. Bain, on the other hand, articulated a vision of what psychology should attempt to accomplish. As the discipline pursued Bain's practical functionalist goals, it departed the ascetic sanctuary of physiological psychology's laboratory.

Bain's work represents a critical link between the "forward-looking" behavioristic aspects of psychology and its roots in the phrenological tradition. Its functionalism, distrust of introspective methods, moving of psychology from its philosophical context to a biological one, physiological orientation, and utilitarian stance all stem from Bain's early and amply documented commitment to phrenology.⁶² Even though Bain elaborated a sensorimotor view commonly considered in opposition to faculty psychology, his conception of the scope of psychology, derived from his adherence to phrenology, remained intact. Just as Wundt kept alive the introspective programs of philosophers concerned with insulating the study of mind from the assaults of experimental physiology, Bain sustained the interest in underlying physiological mecha-

nisms of behavior and in objective analysis of mental phenomena following the denigration of phrenological notions of cerebral localization. However, he did not do so without the aid of a concept conspicuously absent from his system, the concept of evolution.

Evolution and the Revival of Phrenological Concerns

When Bain discarded his phrenological theories based upon the concept of mental faculties for a sophisticated sensorimotor theory grounded upon the principles of association, he had sacrificed what Angell would later regard as one of phrenology's most compelling features: the postulate "of definite and distinct forms of mental action." In place of innate faculties, Bain substituted the idea of spontaneous random movements that precede sensation and, through habitual repetition, produce voluntary action and terminate in purposeful behavior.⁶³ The establishment of laws of connection between random, voluntary, and purposeful activity would await the refinement of experimental procedures in comparative psychology in the late 1890s. In the meantime, Bain's reductionist hypothesis seemed to offer small gains to educators, alienists, and other professionals accustomed to viewing mind as a congeries of phrenological faculties and requiring greater emphasis on hereditarian modes of explanation than Bain's theory of random motion seemed to supply. Evolutionary theory provided these groups with exactly what they needed.

Herbert Spencer had adopted Bain's emphasis on learning as a fundamental problem of psychology. In his *Principles of Psychology* he invoked the idea of the inheritance of acquired characteristics in his argument that an organism's learned responses modify its nervous constitution and that those structural modifications become hereditarily transmissible. Combining association with evolution, Spencer replaced the Lockean *tabula rasa* of the individual with that of the race,⁶⁴ thus explaining how random movements become stabilized as instincts in the collective history of the species. By extending the principles of associationism from the experience of the individual to the experience of the tribe, the former proponent of phrenology⁶⁵ in effect converted phrenological faculties into hereditary instincts and provided an evo-

lutionary conception of mind and behavior that retained the familiar notion of interaction between heredity and environment.

Spencer's notions appealed to the same groups that had flocked to the preachings of phrenology, and for many of the same reasons. Additionally, evolution commanded attention because it promised to explain change, "a sense of which," notes Stow Persons, "was so pervasive in the late nineteenth century."⁶⁶ Within educational theory, psychiatry, criminology, and social policy concerning "the race problem," evolutionary psychological theories were advanced as plausible explanations to pressing social problems. As phrenology's credibility sank under the weight of neurophysiological counterevidence and popular vulgarization, evolution provided a convenient theoretical framework for prosecuting the same kinds of empirical investigations once countenanced by phrenology. Education was one such concern.

The development of universal public education as democratic means of furnishing basic training for industrial society's children was accompanied by a search for a coherent pedagogical theory. The child-centered curriculum supported in the 1840s by the phrenological views of Horace Mann found new authoritative backing in the late nineteenth century in evolutionary naturalism. Recapitulation, a synthesis of evolution and embryology that hypothesized that the mental growth of the child repeated the phylogenetic development of the race, suggested to educationists that pedagogy be reformed to coincide with the child's natural sequence of growth.⁶⁷ G. Stanley Hall's child-study movement, informed by this new genetic paradigm, represented an exhaustive empirical compilation of children's behavioral traits such as Gall had envisioned. Its approach shifted slightly from generalized descriptions of static mental, moral, and physical traits to descriptions of the dynamic development of those traits. The essential purpose remained the same: to establish a composite portrait of mind while simultaneously eliciting patterns of hereditarily explicable individual differences.

The study of individual differences was also conspicuously manifest in the criminal anthropology of Cesare Lombroso. His *L'uomo Delinquente* (*Criminal Man*), published in 1876, reinvestigated pre-Darwinian notions of hereditary degeneration by using anthropometric results to reinforce the conclusion that the criminal mind represented an ata-

vistic throwback to the delinquent's racial past.⁶⁸ While the eugenics movement, which attempted to explain—among other things—the hereditary roots of criminal abnormality, is often seen as a consequence of evolutionists' concern with variation and, more specifically, with the investigations of Darwin's cousin, Galton, the overriding connection between phrenology and eugenics has been well documented.⁶⁹

Social perception of increasing criminality complemented that of increasing insanity. The acknowledged failure of alienists to cure insanity by means of "moral treatment" paved the way for the introduction of neurological concepts of "mental illness."⁷⁰ Contemporary neurological thought, decisively influenced by John Hughlings Jackson and, through Jackson, by Spencer, assumed that the nervous system evolved in complexity and that this evolution represented a biological adaptation to an increasingly complex civilization. Hughlings Jackson had maintained the doctrine of psychophysical parallelism: the nervous system of strictly sensorimotor processes was paralleled by ideas of sensation and movement. Thus, neurological thought left room for psychological as well as physiological investigation. Insanity was thought to result from disruption of this finely tuned and sensitive nervous structure through physical disease, through hereditary degeneracy, or through the impact of faulty ideas or traumatic emotional experiences. In the 1870s and 1880s, therefore, psychiatric thought was pursued by most neurologists in what Nathan Hale has called "the somatic style" and somewhat later in the hands of Freud along strictly psychological lines.⁷¹ In a way, physiological psychology would mediate between these two extremes.

Statistical findings reinforced social perceptions in finding alarming correlations between insanity, crime, and immigration. The influx of southeastern Europeans and the migration of southern blacks elicited most apprehension in the major seaboard cities of the eastern United States, the centers of the new psychology in America.⁷² The evolutionary theories of Spencer and his disciples, including the American John Fiske, and the eugenical investigations of Galton, conspired to make the assumption of immigrants' inferiority a problem for racial psychology.⁷³ Since mind was seen as the organ of adaptation to the environment, immigrants' sudden change from relatively primitive cultural contexts to more civilized ones presented them with adaptive

problems for which their inherited acquisitions had not prepared them. This exact formulation had already attained widespread recognition through the phrenological preachings of Charles Caldwell and George Combe.⁷⁴ In brief, the most glaring ills of American society seemed to form an interrelated cluster of problems significantly explicable in psychological terms, initially in terms of phrenological categories of explanation and finally in terms of evolutionary theory. Psychology as a diffuse (one might say "undisciplined") body of thought provided the groundwork for more than academic philosophy.

The Academic Institutionalization of Practical Psychology

Thus far, we have endeavored to show that, while Wundt refined the introspective study of the generalized human mind into the pure experimental psychology that came to be called structuralism, there remained throughout the nineteenth century a resilient tradition of objective, comparative, functional, practical psychology rooted in the phrenology of Gall and refurbished with the evolutionism of Spencer. Such a reminder constitutes an essential antidote to conventional portrayals of modern psychology evolving from structuralism to functionalism to behaviorism, and to the ubiquitous assumption of disciplinary endeavor moving "from philosophical psychology to experimental psychology and then on to applied psychology."⁷⁵ As virtually every contemporary description of the new psychology in American indicates, what was novel about the movement was the admixture of academic concern with both consciousness *and* character, with both mind *and* behavior, with both philosophy *and* social science.⁷⁶ The importation of Wundtian psychology was an important ingredient in the new psychology's scientific advancement, but the overwhelming cultural vision of the new psychology, the organization of its knowledge, and the very texture of its undertakings reflected the legacy bequeathed by Gall, endorsed by Bain, and restored by Spencer. Awareness of the fact that the new psychology represented an alliance of these two traditions constitutes an essential presupposition for fruitful discussion of the origins of behaviorism.

There remains, however, a fundamental question posed earlier as to how such inquiries into the mentality of madmen and murderers, of

slow learners and rapidly proliferating immigrants became assimilated into the syllabus of academic philosophy. To be sure, the nineteenth-century moral philosopher was vitally concerned with such social issues as temperance, public schooling, and prison and asylum reform.⁷⁷ Still, there remains an obvious distinction between proselytizing for abstinence from alcoholic beverages and investigating the effects upon perception of intoxication, between urging humanitarian reform in the asylums and monitoring psychotic episodes, between elaborating the democratic benefits of public education and studying how children learn. The transition from ethics to practical psychology would depend ultimately upon the social and emotional predispositions of psychologists who found the treatment of such problems compelling and upon the dictates of a society on which psychologists were dependent for support. Such matters are the concern of subsequent chapters. Presently it suffices to show how certain aspects of the evolutionary controversy in philosophy and the Darwinian revolution in science facilitated this transition.

The compatibility between Wundtian psychology and the philosophic inclinations of the collegiate Realists has already been described. Academic philosophers had, however, always been wary of practical psychology because of its tendency toward materialistic explanations of mental phenomena. Especially in the form of phrenology, practical psychology, eschewing epistemology, metaphysics, and introspection, represented Common Sense Realism's ideological antithesis. Practical psychology leaned toward positivism that, many feared, was a stepping-stone to the spiritual quicksand of materialism. But just as the threat of evolution prompted philosophers to confront materialism on its own grounds by importing the positivistic physiological psychology of Wundt, the popularity of Spencer's mechanistic hypotheses to Spencerian notions of the way the world worked.⁷⁸ As had no other psychologist since Gall, the metaphysically agnostic Spencer pleaded that the proof of his theories rested on their ability to provide plausible explanations for society's most urgent problems. To counter Spencer meant to encounter these problems more directly than the abstracted traditions of moral philosophy had previously permitted.

Ironically, when the new psychologists looked about for a counter-

vailling framework of explanation of such problems, they found in Darwinian biology an approach that provided immeasurable philosophical consolation. Any apprehension that the substantive claims of evolutionary biology presaged analyses of mind solely in terms of physical or physiological laws was balanced by scientific comprehension of the fact that Darwin's own methods were far removed from any such reductionism. Attempting to solve a single problem of how species originated, Darwin had gathered his data from paleontology, geology, archeology, zoology, breeders' studies, demography, comparative anatomy, anthropology, botany, and a host of other natural historical sources. Such methodological eclecticism, argues Brian Mackenzie, served "to stimulate the assumption that a wide variety of kinds of evidence could legitimately be applied to the study of fundamental problems about living organisms. . . . The influence was determinative for both biology and psychology." Mackenzie's point merits quoting at length:

Regarding the units of scientific inquiry, Darwin made a wide-ranging scientific study, encompassing both animals and man, that owed little or nothing either to the reduction-laden concepts of physics or to the theology-laden concepts of most biology. He demonstrated that it was possible to make a major study which was wholly naturalistic and which would, after some dispute, be accepted as scientific, which had such variables as population pressures, adaptation, reproduction, and variation among its fundamental units of explanation and description. Thereby, he showed that qualities other than physiochemical or even physiological ones could gainfully be employed and claimed to have causal significance in a naturalistic and scientific theory. The reducibility of these units to physiochemical ones was never an issue because . . . the evident fertility of such units, in their own field of applicability, made their reduction anything but a pressing issue. The success of evolutionary theory in biology thus made the reduction of biological—and by extension psychological—events to physiochemical ones a problem for future detailed explication rather than, as it had previously been, an impediment to the development of a theory which was scientific, but not based on physics.⁷⁹

Within American academic psychology it is a demonstrable fact that from the very beginnings of institutionalization the new psychologists employed statistical methods for correlating individual differences and anthropometric techniques for measuring them; questionnaire methods for compiling data on child development; clinical studies of be-

havioral abnormalities; and, somewhat later, naturalistic observations of animals. The new psychologists engaged in mnemonics and hypnotism; they analyzed dreams; most of their interests took them beyond the laboratory door.⁸⁰ Surely such studies would and did develop within the respective fields to which they were germane. Educators would amass statistics; doctors would record cases of neurasthenia; and poets would interpret the meanings of dreams. But the example of Darwin's catholic approach encouraged the new psychologists to claim that, on the one hand, they were staunch traditionalists mapping the province of the old psychology—the normal adult human mind—and that, on the other hand, they were surveying this territory by using novel methods of empirical triangulation. They could approach the normal through the abnormal, the adult through the child, man through the animals, and consciousness through behavior. Darwinism reinvigorated the comparative empiricism of Franz Joseph Gall.

While the scientific promise of this eclectic approach for a unified conception of mental life remained to be seen, the professional advantages were immediately apparent. The new psychologists could portray themselves as custodians of continuity and purveyors of change simultaneously. Their claim to academic recognition did not hinge precariously on precocious calls for redefinition of psychology's purpose and scope. Rather, it seemed to rest modestly and reasonably on their insistence that they possessed new methods that represented a considerable improvement over "the armchair and the lamp." However mundane and naively empirical many of these methods (such as the questionnaire) proved to be, they possessed in the hands of the psychologist a prestige associated with the laboratory. Conversely, psychologists were able to argue convincingly that their accumulation of data from a wide variety of sources insured that "psychology will not have to wait till its greater laws [derived from the laboratory] shall be wholly established before she becomes of practical influence in common affairs."⁸¹ Such assurances were particularly welcome, since the new psychology arrived precisely at the time when the reform presidents of the major universities were accentuating the practical aspects of academic endeavor.

These eclectic approaches to the study of mind encouraged the opening of lines of communication between academic psychologists and

such nonacademic institutions as the clinic, the asylum, and the classroom. The repositories of their data were the arenas of social policy debate. This not to say that the new psychologists immediately parlayed their academic certification into practical roles as experts, for such competency as that term suggests remained to be justified. Rather, it is to suggest that the institutional linkages between academic psychology and the social agencies upon which such roles would eventually be grafted existed from the very beginnings of psychology's academic institutionalization and that justification for conducting certain types of research could readily be translated into utilitarian terms. The very ambiguity of what it was that psychology was about broadened its appeal, not only to its patrons, but to those drawn to psychology as a career, and facilitated its remarkable institutional success. This expansive catholicity, this sanguine expectation that a science of mind would emerge from the combined approaches of disparate investigations, this actual contact with social problems *was* the new psychology.

In the year of the APA's founding, when prospects of psychology's academic growth seemed secure, and when there were finally sufficient psychologists to listen, James predicted that 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. 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.⁸²

Twenty years later, Watson's declaration that psychology should be defined exclusively as the study of behavior mirrored the extent to which that hard alternative had been forced upon the profession. The next half of this work is devoted to elucidating the pressures that shaped that choice. It begins with the expectations and experiences of James, Ladd, and Hall, whose careers reflected the tensions implicit in the new psychology's manifold vision.

CHAPTER 6

The Search for Authority: William James and George T. Ladd

Shall I get me a little nook in the country and communicate with my living kind . . . or shall I follow some commoner method—learn science and bring myself into man's respect, that I may better speak to him?

—Henry James, Sr. to Ralph Waldo Emerson [1842?]

It is more than doubtful whether Fechner's "psychophysical law" . . . is of any great *psychological* importance, and we strongly suspect that Helmholtz's "unconscious inferences" are not the last word of wisdom in the study of perception; but because these things are very difficult and very "scientific," people who do not understand them will remain persuaded that they are of portentous moment, and will distrust all teachers who have not swallowed and assimilated them.

—William James
"The Teaching of Philosophy in Our Colleges," *Nation* (1876)

"Physical science," wrote William James in 1876, "is becoming so speculative and audacious in its constructions, and at the same time so authoritative, that all doctrines find themselves, willy-nilly, compelled to settle their accounts and make new treaties with it."¹ We saw in