

One Hundred Years
of Psychological Research in America

*G. Stanley Hall and
the Johns Hopkins Tradition*

EDITED BY

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2. G. Stanley Hall and His Successors: A History of the First Half-Century of Psychology at Johns Hopkins

Philip J. Pauly

In 1880, the thirty-six-year-old G. Stanley Hall was in Leipzig, pursuing postgraduate work in physiology, psychology, and the “logic of science” with Carl Ludwig and Wilhelm Wundt. Hall hoped to return to a professorship in America, and he wrote President Daniel Coit Gilman of the Johns Hopkins University regarding a possible market for his intellectual “wares.” He was especially interested in Johns Hopkins because, as he rather awkwardly explained, “Baltimore seems to me the richest virgin soil & I am sure the best of influences might be made to reach and effect the other Universities.”¹ It would be another two years before Hall would obtain a lectureship at Johns Hopkins, and two more before he became professor, but he was correct in his estimation that Johns Hopkins was open to new trends and that it was a center that could substantially influence American academic life. The graduate psychology program that he established there, oriented largely around work in the laboratory, was the first of its kind in the United States (Boring 1965; Ross 1972, 242–247). It provided the organizational model and a significant portion of the personnel for American academic psychology in the field’s crucial early years.

This chapter describes the creation of Hall’s program and the further development of psychology at Johns Hopkins through the 1930s. The two things Hall noted—that Johns Hopkins was not restrained by tradition and that it was a center of influence—can be considered the distinguishing characteristics of the university’s psychology department throughout these decades. Influence derived from Johns Hopkins’s status as a premier scholarly institution. The continuing lack of tradition, however, was peculiar to that department; and unlike the university’s position in American learning, it was not a consciously sought result. Between the founding of the university in 1876 and the end of World War II, two major psychologists—J. Mark Baldwin and John B. Watson—left Johns Hopkins precipitously under clouds of scandal. Even more significantly, the university’s financial problems led to two suspensions of the entire program, in

1888 and in 1941. As a result, the department was essentially created anew five times, and the people involved were periodically required to rethink the nature and aims of psychology.

By examining the programs set up by Hall in 1883, by Baldwin in 1903, by Watson in 1909, and by Knight Dunlap in 1920, we can gauge the changing interests and concerns of American psychologists. More particularly, we can see how the meaning and function of Hall's basic creation—the psychology laboratory—changed in ways indicative of broader trends. For Hall, the laboratory was a symbol of psychology's position as a university science. When Baldwin reestablished work in 1903, he brought a specialist to set up experimental work as one part of a broad program within a department of philosophy, psychology, and education. For Watson, the laboratory was the physical and organizational basis for the radical intellectual breakthrough of behaviorism. And for Dunlap, the laboratory became an academic workplace for the "routine" production of research and of doctoral students. While Johns Hopkins was not the leader in all of these developments, its history provides a useful index of the many ways in which American psychology changed from the Gilded Age to the Second World War.

The Origins of Psychology at Johns Hopkins

Two mutually reinforcing myths have long helped to account for the breaks from tradition in both psychology and in educational policy that took place in the early years of Johns Hopkins. Hall's "new psychology" has often been described as an importation from Germany, in particular from Wilhelm Wundt (Boring 1950). And Johns Hopkins, with its emphasis on graduate study and research, has been portrayed as an American version of the nineteenth-century German university. While both claims have considerable factual basis, reliance on such characterizations obscures the more interesting and complex process of innovation within the American context. Before his trip to Leipzig (where he spent much more time with the physiologist Carl Ludwig than with Wundt), Hall had already received (in 1878) a doctorate in psychology from Harvard. Wundt influenced him in only a few—albeit crucial—ways. Furthermore, he was working in a university whose leaders were more concerned with the problems of post-Civil War America than with Germanic scholarship per se. The account that follows necessarily depends largely upon Hugh Hawkins's (1960) and Dorothy Ross's (1972) exhaustive studies of the early years of Johns Hopkins.

At the time of the opening of Johns Hopkins in 1876, there were two different classes of higher educational institutions in America (Veysey 1965). The older Eastern schools such as Harvard, Yale, Princeton, and

Amherst were firmly established and reasonably well funded but were linked closely to small constituencies of alumni and local leaders. A much larger number of small midwestern institutions, including the new land grant colleges, were varied in their aims, but ties to religious denominations and political factions limited their activities. All of these institutions, however, shared one aspiration: they were colleges, with primary emphasis on providing a basic liberal education. Modifications that were beginning at Harvard and at the new Cornell University were still of uncertain scale and significance.

In contrast to this picture, the Baltimore merchant Johns Hopkins established his school *de novo* with the then immense endowment of \$3.5 million, and he appointed before his death a board of trustees made up of his fellow Quakers and a few other well-educated Baltimore businessmen. As in other institutions, these trustees were local and sectarian, but they were unusually free to create the kind of institution that seemed to them appropriate. They rejected the obvious paths and chose to establish neither a denominational Quaker school nor an institution designed primarily to provide collegiate training to the Maryland upper classes. Instead, they endorsed the plans of the forty-one-year-old Daniel Coit Gilman, whom they brought from the University of California, to create a new kind of institution in Baltimore. The Johns Hopkins University, while including a college, would educate men beyond that level, primarily to enable them to become the teachers in colleges; allied with that aim would be the mission to advance knowledge through research (Franklin 1910; French 1946; Cordasco 1960; Hawkins 1960; Hannaway 1976).

The motivations of Gilman and the Johns Hopkins board in making this choice were complex. Idealism and the desire to raise American intellectual standards were combined with interest in emulating European—especially German—modes of intellectual activity. In addition to these general considerations, however, there were aims more specific to the situation of Baltimore in the 1870s. In the aftermath of the Civil War, when federal troops still occupied a number of Southern states, Gilman sought reconciliation and reunification. Johns Hopkins, in drawing students from all parts of the country and sending them to staff the many colleges, would be instrumental in creating a single national culture. Beyond this, Gilman sought through Johns Hopkins to spread a new way of thinking in America.² From Gilman's standpoint, one of the major banes of American life had been the prevalence of dogmatism. Denominational arguments and religious tests had supplanted the simple religious devotion that had sufficed for American Christians in the early part of the century. Abolitionists and Southern firebrands had incited the Civil War and continued to provoke hostility through Radical Reconstruction and the Ku Klux Klan. Economic dogmatists such as Henry George's "single taxers"

had harried Gilman at the University of California and destroyed the spirit of trust between classes and interests he had hoped would underlie the creation of a university in the west. Johns Hopkins and the teachers it would produce would, he hoped, work to replace the spirit of dogmatism with a willingness to listen and compromise in the name of orderly progress.

In this context, one of the notable aspects of the early Johns Hopkins takes on new meaning. Of the six senior professors chosen in the university's first year, four were mathematical and natural scientists. This emphasis resulted partly from the availability of personnel and partly from the common late-nineteenth-century enthusiasm for science. Gilman, however, was not interested primarily in science's results, which had long been presented through texts and lectures in the colleges. Rather, he wanted his university to teach what he saw as scientific attitudes—discipline, self-restraint, and skepticism toward unsupported generalizations. In particular, scientific work would lead students to recognize how much was not known. Within this immensity they would then be able to outline some problem that seemed soluble, and work methodically towards its solution. Like other strong figures of his generation, Gilman perceived that such a form of science could be the sovereign remedy for dogmatic convictions of absolute truth.

The student research laboratory—another Johns Hopkins innovation—provided the basis for teaching such scientific attitudes. It was a controlled environment where students learned, through emulation of the professor and more advanced workers, to restrain their thinking, to formulate soluble problems, and to work methodically toward solutions. The subjects studied and results attained were less valuable than the activity of research itself. The aim was to produce minds with a sense of the attainable. Graduates of the university could explain what they knew, would respect the expertise of others, and would recognize when a question was still open.

This method was applied at Johns Hopkins to both the natural sciences and to the gradually developing work of historians and philologists in their "seminaries." But such a system created difficulties for one field central to university identity in the nineteenth century, namely, philosophy. Gilman recognized from the beginning that selection of faculty in this area would be difficult. To a large part of the surrounding community, the university's scientific emphasis implied a commitment to materialism and atheism. This impression was reinforced when the agnostic evolutionist T. H. Huxley presented the inaugural academic lecture in August 1876 with a conspicuous absence of prayer. To hire a philosopher such as John Fiske, who was a spokesman for Herbert Spencer, would alienate many whose benevolent neutrality was important for the university's long-term suc-

cess. But the deeper problem was that systematic philosophy of any sort was considered the antithesis of the laboratory spirit. In the traditional curriculum, the college president taught philosophy to all the seniors, presenting them with a comprehensive world view that they could carry through life (Schneider 1963; Kuklick 1977). It would be difficult to harmonize this view of philosophy and its educational function with the other aspects of Johns Hopkins.

It is not surprising that Gilman moved slowly in his search for a philosophy professor. The university could sponsor speculation only on the part of an established figure with impeccable religious ties. Gilman approached a number of European scholars during the university's first years and offered a professorship to the Scottish theologian and moral theorist Robert Flint in 1881, but neither Flint nor anyone else with a sufficiently commanding reputation was willing to come to Baltimore. An alternative path was to develop philosophy as a purely historical discipline open to the same kind of treatment as philology and political history. G. S. Morris of the University of Michigan, known as the translator of Friedrich Ueberweg's classic *Geschichte der Philosophie*, was hired as a half-time professor in 1879 as a way of exploring this avenue. A further possibility was to emphasize those aspects of philosophy that approximated the mathematical sciences in their claims to certainty and methodological rigor. As a result, C. S. Peirce, who worked as a physicist for the U.S. Coast and Geodetic Survey, was given a part-time position to teach logic. Although Peirce had recently published his seminal paper on the pragmatic theory of knowledge, at Johns Hopkins he avoided the bold theorizing that marked his later work. Graduate student John Dewey, for example, was disappointed that Peirce's lectures were designed more for mathematics students than for those interested in philosophy per se (Dykhuisen 1973).

Psychology—long a branch of mental philosophy—was also recognized as a possible approach. English writers such as W. B. Carpenter, Herbert Spencer, and Alexander Bain had promoted the subject in a context that emphasized its ties to the biological sciences. Americans were interested in this approach but were anxious about its controversial materialistic implications. The work of German physiologists such as E. H. Weber, Hermann Helmholtz, and Emil du Bois-Reymond provided a significant contrast, because they demonstrated experimentally the inadequacy of simple deterministic explanations of sensation, perception, and action (Turner 1977; Willey 1978). Their studies promised to lead to more refined understanding of the parameters for epistemological discussion. Wundt's *Grundzüge der physiologischen Psychologie* (1873, 1874) brought together their previously scattered observations and experiments in such a fashion that their implications became clear to a broad academic audience.

William James, an instructor in anatomy and physiology at Harvard, had responded favorably to Wundt's *Grundzüge* and to the movement it represented (Kuklick 1977; Richards 1982). It provided intellectual assistance in his effort to come to terms with Spencer's scientific challenge to human freedom, and it was also useful in his attempt to carve a professional niche in the rather crowded Harvard environment. His course in physiological psychology, begun in 1876, relied extensively on the German works in its extended argument against Spencer's *Principles of Psychology* (1870); and like a number of others who had come to psychology from physiology, James demonstrated standard experiments to his classes. Gilman was open to this psychological side of philosophy. In 1878, he invited James to give ten lectures and then unsuccessfully attempted to hire him on a basis similar to that of Morris and Peirce (Cope 1951). But his interest in psychology was not compelling, either then or in 1881, when James expressed renewed interest in a Johns Hopkins chair; at that time he rejected James's demand for a full professorship, and, on collapse of these negotiations, shifted the search to the ethicist Flint.

G. Stanley Hall, meanwhile, was periodically reminding Gilman of his existence (Hall 1923; Ross 1972). He had emerged from the evangelical environments of western Massachusetts, Williams College, and Union Theological Seminary in the late 1860s to study Hegelian philosophy in Berlin and to teach at the Unitarian Antioch College. Reading Spencer and then Wundt reoriented him toward psychology, and he moved to Harvard to study with James and the physiologist Henry Pickering Bowditch. While he engaged in some experimental work there, his dissertation on the muscular perception of space was primarily observational and theoretical. It was only upon completing his thesis in 1878 that he returned to Germany to study physiology, first with du Bois-Reymond and Hugo Kroecker in Berlin, and then with Carl Ludwig at Leipzig. He also spent some time there with Wundt, attending both his philosophy lectures and psychology seminar and working irregularly in the rudimentary laboratory Wundt had established just a few months earlier (Bringmann and Bringmann 1980). Since he was already quite familiar with Wundt's writings, the lectures did not interest him greatly, and Wundt's experimental program and laboratory techniques were at this time too crude to add much to what Hall already knew (Bringmann, Bringmann, and Ungerer 1980). But the idea that laboratory training in psychology could be part of a university curriculum impressed him enough that he specifically mentioned it to Gilman a few months later. When James bowed out of the running at Johns Hopkins in 1881, Gilman turned to Hall regarding the customary ten lectures. On their completion, Hall was glad to accept a three-year, half-time position to begin the winter of 1883.

The presence of three part-time lecturers—Peirce, Morris, and Hall—in

one field on indefinite tenure was unusual at Johns Hopkins, and it was likely that only one would become a full professor. Historians of American philosophy (Fisch and Cope 1952; Hawkins 1960) have wondered—rather disappointedly—why Hall was chosen over Morris and especially over Peirce, universally recognized as one of America's greatest philosophers. In part it was a process of elimination on the basis of personal qualities. Peirce, who was always mistrusted owing to his eccentricities, was terminated suddenly in early 1884 when the astronomer Simon Newcomb brought Gilman unspecified derogatory information regarding his character; while still unknown, these charges may have been related to his divorce and abrupt remarriage the preceding year (Fisch and Cope 1952). Morris, while personally faultless, lacked the forceful presence considered necessary in a Johns Hopkins professor. Hall, in contrast to both, seemed stable, strong, and affable.

Hall also stood out in that he could present his subject to both the university's scientists and to the external theistic community. The strongly religious Morris was at a disadvantage in that he had little to say to the university's dominant natural scientists. Peirce's logical work, on the other hand, lacked apparent relevance to religion; after his notice of nonrenewal he claimed that if retained he would make a special effort to bring the philosophy department "into a state of warm sympathy and friendship with science on the one hand and with Christianity on the other" (Hawkins 1960, 196). Hall was an ordained minister who could claim familiarity with science; and he could also claim—only slightly disingenuously—that his psychological work would lead people away from materialism in order "to flood and transfuse the new and vaster conceptions of the universe and man's place in it . . . with the old Scriptural sense of unity, rationality, and love beneath and above all, with all its wide consequences" (Ross 1972, 140).

But the most important element to Hall's victory was the form of intellectual practice that he brought to the university. From 1879 to 1884, the center of philosophical activity was Peirce's semi-official "Metaphysical Club." Students and faculty from a number of disciplines presented papers that often provoked extended remarks and discussion. Topics varied widely in the first years; but by the fall of 1883 discussions focused on the issue that American scholars worried about most yet sought to defuse—the implications of modern science for religion. In October, Morris presented a paper arguing that religious principles must supplement the concepts of matter and force in order to provide a complete account of the nature of life. At the next meeting, Peirce responded to this seemingly naïve view of the nature of science, and then developed his ideas further the following month in a paper entitled "Materialism, Spiritualism, and the Scientific Spirit." Dewey supported Morris with a paper on the nature of con-

sciousness, and zoology student A. T. Bruce criticized the design argument for the existence of God. Deep convictions about the relations between science and religion, which had up to this time been submerged, were becoming the subject of open argument.³

Hall was not in Baltimore that semester. His lecture course on psychology the preceding spring had probably been significant in stimulating these discussions. But his most important commentary on the issues had been through the other activity that he had organized that semester—a course of “practical work in experimental and observational methods of psychological research” (*JHU Circular* 1882, 233). His aim, as he described it to Gilman, had been “to show the kind of work to those interested & indicate, as I hope, problems for the solution of which the technical means & methods at our disposal will prove adequate.”⁴

This activity contrasted sharply with that of the Metaphysical Club. In place of such ultimate questions as the nature of consciousness, Hall posed a set of problems chosen on the basis of their solubility. Instead of inconclusive and “dogmatic” argument, Hall gave students training in regular, painstaking work. Experimental psychological studies, in which subject and experimenter were often interchangeable, provided an almost pure form of mental discipline and, as Hall claimed in 1884, “applied logic” (*JHU Circular* 1884, 117). Hall’s course demonstrated that philosophy could both avoid dogmatism and provide a valid way of learning to think and act scientifically. Hall became professor because he could offer such a pedagogical promise. It is not surprising that one of Hall’s first actions on being appointed professor in 1884 was to “disorganize” the Metaphysical Club.

Hall’s Discipline of Psychology

In proposing his course for the spring of 1883, Hall had hoped to attract physiology students already familiar with laboratory work, but in this he was disappointed.⁵ Of the four men who signed up—Dewey, E. M. Hartwell, Joseph Jastrow, and James McKeen Cattell—only Hartwell had significant scientific preparation (*JHU Circular* 1883, 93). As a result, there was an even greater pressure than Hall had expected that the laboratory, set up in a house adjacent to the university buildings (possibly 187 Howard Street), would provide basic training in scientific experimentation. Hall proposed a broad range of scientific activities. These included studies of binocular vision, perception of time, coordination of action between the two halves of the body, and the relation between psychological attention and muscular movement. Hall also listed “experimental studies of instinct,” “certain psychoprodromae of mental science as testing the theory of devolution as held by H. Jackson, & their relation to

medical jurisprudence," and development of work he had recently begun in "taking an inventory of the content of the mind of the average child."⁶ Once placed in the laboratory, however, the students focused exclusively on the first four psychophysical subjects, ignoring completely the comparative, psychiatric, and developmental questions.

Like any teacher, Hall had varying degrees of success with his students. Dewey, who had taken no laboratory science as an undergraduate at the University of Vermont, began work on the problem of "the effect attention has in producing involuntary muscular movements" (Dykhuisen 1973). But he soon dropped out of his only organized encounter with learning through experience, and he published no results. Hartwell, who had already completed his doctorate in physiology the preceding year, was an instructor in the biological department. He followed Hall's suggestion to investigate asymmetry in arm movements, in judging distances, and in responding to sounds from different directions. The results were inconclusive, and Hartwell soon gave up research to direct the university physical education program (Ross 1972, 155). Jastrow, son of the one of the principal rabbis of Philadelphia, had graduated from the University of Pennsylvania in 1882. He had begun psychological experiments in his rooms the preceding fall under the general direction of Peirce. With Hall, he took up the time perception problem, examining discrimination between rapidly repeated sounds, differences of direction, and estimation of both silent and noisy time intervals (Ross 1972, 156). Jastrow decided to make psychology his major field, completed his doctorate in 1886, and became professor of psychology at the University of Wisconsin (Jastrow 1930).

The experience of Cattell is the most interesting; and, as a result of the work of Michael Sokal (1981), is available largely in Cattell's own words. Cattell had graduated from Lafayette College in 1880. He then spent two years in Europe, by turns touring, studying philosophy, drinking, dueling, and suffering fits of depression that revolved around religious anxieties and awareness of the lack of meaning in his life. On his parents' urging, he applied successfully for a fellowship at Johns Hopkins in philosophy, but he spent his first semester in a lethargic state that was broken only by periodic "experiments" with the effects of hashish, morphine, ether, caffeine, tobacco, and chocolate. In February 1883, however, he noted in his journal that he had "commenced work this morning in a new physiologico-psychological laboratory" (64). His habits soon became more regular and his intellectual interests more down to earth. In about a month, he developed his own research problem of measuring the time needed to recognize and name letters of the alphabet as an index of the duration of mental processes. At the end of the academic year, Cattell's fellowship in philosophy was not renewed, because Hall was unwilling to

press Cattell's superiority over Dewey, and compounded the problem by lying to Cattell that he had recommended him. Cattell raised a storm and left the university. But his semester of laboratory work had put him on a course for Leipzig and Wundt and led him to concentrate for a number of years on the specific problem of measuring "the time it takes to think." On this basis, he set out on a definite career path that culminated in the professorship of psychology at Columbia.

For those who stuck with it, Hall's laboratory thus provided both intellectual and professional discipline. The research topics were an eclectic mixture derived from Hall's dissertation work, his experiences in Germany, and his students' interests. The projects themselves were not terribly significant, but this was to be expected, given the combination of Hall's relative lack of relevant experience, the ad hoc nature of the laboratory, and the explicit intentions in establishing the course.

While the disciplinary value of experimental psychology had been demonstrated, the long-term direction of research remained unclear; and the intellectual vacuum filled only gradually as the laboratory established itself in the university. In January 1884, Hall returned to teach for a second year, and he reestablished his "laboratory of psycho-physiology" on the second floor of the new biology building (*JHU Circular* 1884, 85). When he became professor a few months later, he terminated Dewey's fellowship and gave it to H. H. Donaldson, a physiology student who had assisted him informally in the laboratory from the beginning. Biology students began to work in the lab in significant numbers, and Hall began to acquire charts, models, and apparatus for demonstrations and experiments on such phenomena as hypnotism, binocular vision, and rapid rotation. Requisitions also noted purchase of electrical and chemical supplies, along with "16 frogs, 1 bat, 1 pt. ether."⁷ Donaldson began a series of significant researches identifying warm and cold temperature spots on the skin; and after a year in Europe he returned to run the laboratory (now moved to four rooms in the new physics building) in 1886 as associate (assistant professor) in psychology. But most of his work in Europe had been with such neuroanatomists as Bernhard von Gudden and Camilla Golgi, and he began to focus the laboratory increasingly on histology (Donaldson 1888).

Hall made Donaldson autonomous, however, both because he recognized his own limitations in the laboratory and because he was moving into new areas. He expanded his teaching activity to include not only psychology and occasional lectures on pedagogy but also most other aspects of philosophical instruction. But his more important work was in the professionalization of psychology, in particular the creation of a journal. A number of the Johns Hopkins professors had founded scholarly publications, and the university provided support in order to promote scholarship and the university. Hall was unable to get a university subsidy, but still he

announced the *American Journal of Psychology* in 1887, hoping to operate at a profit or attract university funds. The journal provided an outlet for the work of Hall and his students. But Hall also—through a long review section—sought to bring together the scattered work he considered relevant to psychology and to reform the subject through strong criticism from the standpoint of rigorous science. While Hall's promotional activities unfortunately alienated colleagues such as James, thereby limiting the journal's significance, he nevertheless succeeded in advertising the existence of a new psychology within the academic world. And the journal was not Hall's only professional activity. Beginning in 1884 he studied and consulted on the management of Baltimore's public insane asylum, and in 1888 he began a general collaboration with Edward Cowles, medical superintendent of the elite McLean Asylum near Boston. Furthermore, he shared in the widespread interest of the time in psychic research. When the American Society for Psychical Research was founded in 1884, he became one its vice presidents; however, he was skeptical about psychic phenomena and after a few years resigned from the society (Ross 1972, 160–180).

Hall's effort to build a program in scientific psychology at Johns Hopkins, while promising, was still unfocused in 1888 when he was offered the presidency of the new Clark University in Worcester, Massachusetts. Uncertain how to proceed, he hinted to Gilman that he would stay in Baltimore if the university would take over the cost of his journal and regularize the status and funding of the psychology laboratory. Unfortunately, the university was caught in a financial crisis at this point owing to the impending bankruptcy of the B&O Railroad, whose stock formed the basis of the university's endowment. As a result, Gilman was unwilling to make any commitments. Hall left, and in spite of a student petition that psychology "forms in our estimation an indispensable part of the full equipment of a liberal university and should therefore be maintained in its completeness and entirety," he was not replaced. Elimination of psychology was an easy economy.⁸

Yet, in spite of the university's inability to maintain the program Hall began, the activities in Baltimore from 1883 to 1888 were crucial to the creation of a discipline of psychology in America. The students who experienced the Johns Hopkins program—most notably Cattell and Jastrow—went on to build departments at other major universities. The prestige Johns Hopkins had lent the field was an important aid to these entrepreneurs. And above all, Hall's use of the laboratory to define the core of his program became the model for other institutions. This innovation was recognized even by his most unsympathetic colleagues. In 1895, when Hall's hopes for Clark University had faded owing to the mistrust he generated in both the university's founder and its faculty, and when his

predominance in American psychology was being challenged by Cattell's and J. Mark Baldwin's creation of the *Psychological Review*, Hall wrote a grandiose editorial in his journal that implied that essentially all American psychology programs had been founded by his former students. His colleagues indignantly contradicted these arguments; but in all cases, the objectors accepted the principle that the creation of a graduate laboratory was the crucial event in marking when a real program in psychology began to exist (Ross 1972, 242–48). In the 1890s, the concerns of many psychologists—most notably Hall himself—shifted from narrowly physiological experimentation to more broadly naturalistic study of development, and their ties to education programs grew. But the existence of a lab, for teaching and perhaps research, was still what signified that psychology was being done (O'Donnell 1985).

Baldwin: The Integrative Enterprise

There was no graduate psychology program at Johns Hopkins from 1888 to 1903. The university's financial crisis eased by the mid 1890s, but Gilman had no interest in reestablishing a chair. The situation changed when Ira Remsen, the professor of chemistry, became president in 1901. Remsen felt the university needed to reassert its position in American academic life with a number of conspicuous new appointments, and in 1903 he obtained approval for two new chairs—one each in psychology and in philosophy. In August, he wrote to J. Mark Baldwin, professor of psychology at Princeton, regarding recommendations for the new positions. When Baldwin dropped the hint that he himself was considering “a change in [his] base of operations,” Remsen leapt to the bait, and negotiations were concluded in a few days with an offer of a professorship of “psychology and philosophy,” with a mandate to develop a program second to none.⁹

For reasons that will soon become clear, Baldwin has long been a neglected figure in the history of psychology; his importance is only now being recognized (Cravens and Burnham 1971; Mueller 1976; Broughton and Freeman-Moir 1982). Seventeen years younger than Hall, Baldwin had grown up in a Presbyterian family in Charleston, South Carolina. He studied theology and philosophy at Princeton in the mid 1880s and also spent a few months in 1885 in Leipzig with Wundt and Cattell, familiarizing himself with what had become a much more established organization than Hall had visited five years earlier. After two years of teaching at Lake Forest University, a Presbyterian missionary college near Chicago, he was named professor of psychology at the University of Toronto, where he established a laboratory similar to Hall's. Four years later he returned to

Princeton as professor of psychology, where he set up a similar laboratory (Baldwin 1926).

Just as Baldwin followed Hall's path of using the laboratory to symbolize a new psychology, he also quickly moved beyond the laboratory to the broader concerns that made him a young leader in the field in the 1890s. Like Hall, Baldwin's basic interest at this time was in mental development in the child and the race, as a book of 1894 was entitled. Laboratory work played some role, but was subordinated to naturalistic observation of children, to Darwinian theorizing, and to linkages with sociology and speculative philosophy.

The program Baldwin set up at Johns Hopkins in 1903 reflected these varied intellectual aims. In contrast to Hall's policy of establishing psychology as an independent scientific discipline the meaning of which was sharply restricted, Baldwin coordinated a large department of philosophy, psychology, and (as of 1908) education (JHU *Circular* 1904, 179-80). For a nominal salary, Christine Ladd Franklin, who had studied with Peirce and the mathematician J. J. Sylvester at Johns Hopkins in the late 1870s, lectured on symbolic logic and color perception. C. B. Farrar, a psychiatrist at Sheppard-Pratt Hospital, taught physiological psychology and provided liason with the psychiatric community. When money became available from the state of Maryland, Baldwin hired E. F. Buchner to teach educational psychology and the philosophy of education. He himself covered the areas of developmental psychology and social psychology, along with his increasingly speculative concern with what he called the "genetic theory of reality." Finally, he brought in George Malcolm Stratton from the University of California as associate professor of experimental psychology.

Stratton epitomized experimental psychology at the turn of the century (Bridgman 1958). His reputation was based on a classic study he undertook while a doctoral student in Leipzig in the mid 1890s. In order to resolve the question whether inversion of the optical image on the retina necessarily determined orientation in space, Stratton had devised a set of glasses that produced upright retinal images; he found that in a few days he was able to adapt well to a world "seen" upside down, thereby demonstrating that orientation was the result of central rather than retinal processes. This kind of study, striking in its elegance, simplicity, and *bizarrité*, was the business of experimental psychology. Baldwin was able to lure Stratton to Baltimore with the promise of an assistant (Stratton hired J. W. Baird, a recent Cornell doctoral graduate), a laboratory that occupied half a floor in the biology building, and a \$5000 appropriation for new apparatus.¹⁰

In contrast to the earlier situation, however, Stratton's laboratory did

not define the entire field at Johns Hopkins. For Baldwin, experimental psychology was an important element of the larger structure that he was building, one that was essential to the whole, but of no greater significance than a number of the other enterprises. He apparently had little interest in graduate students, and he was not overly concerned with research productivity—Stratton had done little of note after his classic experiment and produced only four short papers in his four years in Baltimore. Rather, Baldwin's emphasis was on creating a community of scholars. In addition to the variety of faculty appointments, he brought such well known Europeans as C. Lloyd Morgan, James Ward, and Pierre Janet to Baltimore for lectures. He sought good relations between his department and biology, supporting the effort to hire H. S. Jennings, author of the highly regarded *Behavior of the Lower Organisms*, as the new professor of zoology in 1906. When Stratton returned to a full professorship at Berkeley in 1908, Baldwin strengthened these links further through appointment of the young comparative psychologist, John B. Watson, instructor at the University of Chicago, in his stead. And he also sought to link the department to the local community, as mentioned above, by adding education to its tasks and increasing his involvement in city affairs by letting it be known that he was available for appointment to the school board. He envisioned a psychology department that would be active on all levels, from protozoa to adolescents.

In the midst of this impressive vision Baldwin was tripped up by a hard nodule of social reality. In the summer of 1908 he was caught in a raid on a "colored house" of prostitution. Initially it seemed merely an embarrassing incident. Although reporters recognized him at the police station and relayed the story to university authorities, they were discreet and he was able to get off by giving a false name to the police and arranging through an influential lawyer for charges to be dropped. When the school board nomination came up the next spring, however, it became clear that the episode was not closed. The opponents of Baltimore's mayor saw an opportunity to make political hay; Baldwin's indiscretion was being talked up, and the *Baltimore News* noted sardonically that "unless something unexpected turns up Professor Baldwin of the Johns Hopkins University will be appointed to the School Board. . . . The mayor feels a particular pride in the appointments he has made to the School Board, and is anxious, apparently, to keep up his record by this appointment."¹¹

With the guilelessness that so endeared them to their fellow Baltimorean H. L. Mencken, the university trustees now demanded Baldwin's resignation. He agreed that it was necessary to avoid scandal and immediately left the city for Mexico, where he had been an occasional consultant on educational policy. Remsen refused to agree with Baldwin's plea that a long leave of absence would be sufficient to protect the university's good name,

and the university received an unconditional resignation on April 17, 1909.¹²

This scandal essentially ended Baldwin's career as a psychologist. He was forced to sell his journals and to resign from the presidency of the International Psychological Congress scheduled to meet in America in 1913. No American university would hire him, and after three years in Mexico he was driven to France by the Revolution. From 1914 to 1917, he was active in promoting American entry into the World War, and after its end he was appointed professor at the *Ecole des Hautes Etudes Sociales*; but by and large his development as a scholar ended in 1909. With Baldwin's departure from the American scene, his broad developmental views—which recent scholars (Phillips 1977; Broughton and Freeman-Moir 1982) have claimed were a model for Piaget—lost influence in America, so that when he died in 1934, his obituarist (Urban 1935) noted that “the great majority of present day psychologists knew him not.”

Watson and the Research Imperative

Baldwin's precipitous departure from Baltimore left hanging the members of his department. They had been collected, supported, and balanced by his considerable intellectual and professional authority; with that gone, their security and status were unclear, both with regard to each other and in the university as a whole. It was at least possible that the events of 1888 would be repeated, and the entire program be eliminated, unless new direction were provided quickly.

John B. Watson, the thirty-one-year-old professor of experimental and comparative psychology, was initially uncertain how to respond. Like Baldwin, Watson grew up in South Carolina; but while Baldwin's parents were well-to-do, transplanted New Englanders, Watson's ne'er-do-well father abandoned his family when John was fourteen (Watson 1936; Cohen 1979; Buckley 1982). In the fervent evangelicalism of upcountry Greenville, his educational opportunities were limited to Furman University, the local Baptist college. In 1900, he followed his undergraduate philosophy teacher's lead in going to the University of Chicago, but once there he rapidly moved out of philosophy to study with the psychologist, J. R. Angell; Hall's former assistant, Donaldson (now Chicago's professor of neurology); and the radical biologist, Jacques Loeb. His doctoral thesis was an examination of the hypothesis that the development of learning ability in the white rat could be correlated with the modulation of the nerve fibers (Watson 1903).

Baldwin was attracted by Watson's concern with the problem of development and by his strong experimental emphasis, and in 1908 he offered Watson a position as associate professor. When Angell countered this,

Baldwin was willing to give him a full professorship. This rank seemed fully justified as the charismatic Watson charmed his Johns Hopkins colleagues and students as much as he had those in Chicago; the 1909 student yearbook, *Hullabaloo*, included a poetic comparison to Sherlock Holmes's companion:

Another Watson lives with us—I'm sure you all have heard;
 He made a study of a rat, another of a bird,
 He found young gulls afraid of him; that white mice nibbled cheese;
 That brains were made of sawdust, or of anything you please.

Still, Watson's rank meant little as long as Baldwin was present; and after Baldwin's dismissal it was clear that Watson's narrow training and intellectual interests, in addition to his age, were insufficient to enable him to take over his patron's role in the university.

One possibility was for Watson to shift into the biology department. He had established good relations with both the zoologist Jennings and the physiologist W. H. Howell, and he considered such an identification at least as intellectually comfortable as psychology. In late 1909, he was writing R. M. Yerkes of Harvard, his closest intellectual companion, that he was unsure whether he was a psychologist or a physiologist, or some kind of "mongrel."¹³ While completely familiar with the Chicago style of psychological functionalism, he had found it of little help in guiding his research into the problems of animal activities that interested him. Yet a shift in professional identification was highly undesirable. Not only was Watson the university's professor of psychology, but in Baldwin's rush to arrange matters during the scandal, he had made Watson the editor of the *Psychological Review*, now America's leading psychology journal.

Watson therefore turned his efforts toward stabilizing his position in the university. In September 1909, he wrote President Remsen: "The affairs of the department are at a crisis, and unless the work at Hopkins is to become a negligible factor we must reorganize." He rejected cooperation with the education professor, E. F. Buchner, on the grounds that he was not "a University man," and he also saw little advantage in maintaining the connection between psychology and philosophy. He sought an independent department of psychology, which would make it "far more easy for me to organize my work and to guide my students." While unwilling to make any immediate changes, Remsen agreed to move gradually in the direction Watson proposed.¹⁴

Watson's claim that psychology should be an independent science was in many ways similar to that made by Hall twenty-five years earlier. Yet Watson's program differed from Hall's in two fundamental ways. Whereas Hall had seen psychology as the scientific prolegomenon to philosophy, Watson considered the fields completely separate, each valuable in its own

place. While Hall had taught philosophy and had resisted other appointments in the field as a form of competition, Watson welcomed A. O. Lovejoy from the University of Missouri to take over a co-equal philosophy program in 1910.¹⁵ But the most important contrast between Watson and Hall was in the sense of what it meant to be a scientific psychologist, a difference epitomized in their relations to the laboratory. For Hall, the laboratory was a symbol devised in the context of advanced pedagogy to demonstrate the nature and status of psychology. But for Watson the lab was the necessary center for creating a future science of psychology. He self-consciously presented himself as a "research man" who would concentrate his efforts as professor on solitary development of an experimental base for psychology through the study of animal behavior.

Johns Hopkins was perhaps the only university where this emphasis was possible. As Watson commented in 1910, "any disadvantages in the place are more than offset by the policy they have here of letting a man alone and in the almost total lack of red tape."¹⁶ In spite of their admiration, Watson was relatively uninvolved with students, and he proposed to continue to study only animals. In other universities, by contrast, there was considerable pressure to teach and also to produce work relevant to philosophy and education. Edward L. Thorndike had abandoned animal work for study of children soon after becoming professor of psychology at Teachers College, and Yerkes was under strong pressure at Harvard to relate his studies of animal problem solving to human situations (O'Donnell 1985).

Watson's famous manifesto of 1913, "Psychology as the Behaviorist Views It," can be seen as an expression of his unique situation. His apologia, that he had "devoted nearly twelve years to experimentation on animals [and] it is natural that such a one should drift into a theoretical position which is in harmony with his experimental work," was not a mere methodological commonplace; rather, it reflected his position as the only full professor of psychology at a major university who devoted himself totally to animal experimentation. His statement that psychology's "theoretical goal is the prediction and control of behavior" expressed the conviction of the laboratory man dedicated to manipulation of the experimental situation. And his general aim in the paper was to elaborate the program of basic research that he had already begun at Johns Hopkins.

In the years from 1913 to 1920, Watson developed and expanded this program. He explored the theoretical implications of behaviorism that led to his theory of thought as subvocal speech (Watson 1913b). He tried (unsuccessfully) to induce the Carnegie Institution to establish a station for the study of animal behavior, and he began agitation for the university to set up a farm to breed research animals, a place where behavioral studies could also be undertaken easily (Cohen 1979, 90). He also began to come to grips with the work of Ivan Pavlov and Vladimir Bechterev, and

along with his assistant Karl Lashley he published one of his few experimental studies of human adults, on the possibility of producing conditioned reflexes (Watson and Lashley 1916).

Overall university planning, however, interfered with this development when the long-awaited move from the buildings erected “temporarily” in the 1880s in downtown Baltimore to the new Homewood campus began in 1916 (French 1946). Since only a few buildings had been completed there, space—always in short supply—rose to an even greater premium. Watson had taught occasionally in the medical school and had developed contacts with psychiatrist Adolph Meyer, head of the Phipps Psychiatric Clinic; when the downtown campus closed, Meyer offered Watson space at the clinic to continue and expand his work as he wished. Although he was now over three miles away from the university’s academic departments and regular teaching, the administration supported his shift to the medical facilities with no apparent second thoughts regarding his status as professor of psychology.

The medical school, with its established community position and access to human subjects, opened new possibilities for Watson. He did not abandon work with rats—in February 1917 he performed some significant experiments on the influence of timing of rewards on learning (Cohen 1979, 106); but the move to the medical school enabled him to expand and adapt his well-established personal program of intensive experimental practice to humans, with few of the constraints that limited the work of educational psychologists. In late 1916, he began observations and experiments on the grasping and blinking reflexes of infants. With only one or two assistants, Watson undertook the same intensive study of capacities and maturation of abilities that he had undertaken fifteen years earlier with the rat.

World War I interrupted Watson’s research from June 1917 to December 1918, but within a few months of his return he had a number of significant projects underway. The observations on babies were picked up where they had been left off, and he found funds to prepare a movie of his experiments. Under the auspices of the federal government’s Interdepartmental Social Hygiene Board he undertook a study of the effectiveness of the wartime anti-venereal disease film *Fit to Fight*. And he was hurriedly writing *Psychology from the Standpoint of the Behaviorist* (1919), the most sophisticated presentation of his general views. Genteel pressure on the university enabled him to raise his salary by a third, with a cordial note from President Frank Goodnow: “It would be extremely unfortunate for the University if you were to leave us to accept a call anywhere else.”¹⁷ And in spite of his lack of interest in graduate training, a number of promising students were asking to assist him in his experimental work. One was Curt Richter, who would follow in his footsteps in the study of

animal behavior; another was Rosalie Rayner, daughter of a prominent Baltimore businessman, who began to assist him with his infant studies.

The story of Watson's romance with Rayner and his subsequent dismissal from Johns Hopkins is now largely a matter of public record (Cohen 1979; Buckley 1982). The two fell deeply in love soon after Rayner came to Hopkins from Radcliffe in 1919. After a few months, Watson's wife, Mary, confronted him with love letters she had taken from Rayner's bedroom and demanded that he break off the romance; when Watson persisted in the affair, Mary agreed to a separation. By August, however, Watson was worried that a public scandal would ensue, and he recounted the events at length to Adolph Meyer, admitting that resignation might be the only solution, but hoping to stay on. Asking for "benefit of wise counsel," he authorized Meyer to use his letter as he saw fit (Leys 1984).¹⁸

Meyer, unfortunately, was not much help. When the university reconvened in late September he informed President Goodnow and argued that unless Watson gave Rayner up immediately, resignation was the only possibility. "Without clear-cut and outspoken principles on these matters, we could not run a co-educational institution, nor could we deserve a position of honor and respect before any kind of public, not even before ourselves." Watson's other close colleague, Arthur Lovejoy, agreed. He had been a moving force behind the founding of the American Association of University Professors in 1913; great pains had been taken in its charter to distinguish academic freedom from "grave moral delinquency." Watson was called to Goodnow's office, pressured to write a one-sentence letter of resignation, and left for New York, where he soon found a new career in advertising.¹⁹ While he continued to write and lecture for some years, his experimental program collapsed, and his ideas hardened in such a way that they were easily shrugged off. He had predicted this accurately—if melodramatically—in his letter to Meyer: "I can find a commercial job. It will not be as bad as raising chickens or cabbages. But I frankly love my work. I feel that my work is important for psychology and that the tiny flame which I have tried to keep burning for the future of psychology will be snuffed out if I go—at least for some time. No man is indispensable. Both psychology and the University can do without me. If I go I shall burn all bridges. I think it is hopeless for the man who has lost to struggle along on the outside with an eye to returning to university work."

Dunlap's Working Department

With Watson's departure, leadership in psychology fell to the junior full professor, Knight Dunlap. Dunlap had graduated from Harvard in 1903 under Hugo Munsterberg and had been brought to Johns Hopkins as an instructor by Baldwin and Stratton (Dunlap 1932; Dorcus 1950). Watson

initially had not been enthusiastic about Dunlap's ability but soon decided to support him as a junior colleague who could handle the routine teaching and maintain a presence in human psychology. With the move to Homewood, Dunlap finally became a full professor and began to set up a graduate program on the new campus. But even after the war, as enrollment began to rise, overall control of budget and appointments still lay in Watson's hands.²⁰

Within ten days of Watson's resignation, Dunlap submitted a statement of needs for coping in "the present emergency," and three months later presented plans for faculty expansion designed to create a foundation for future development.²¹ Dunlap did not claim to be a research genius or intellectual revolutionary. His slow rise through the academic ranks had made him a hard-nosed, even cynical, professional who sought to build a solid institutional structure for his science. The psychologists' activities during the war, primarily in the evaluation of personnel, had boosted the profession's status considerably; it was now considered possible that psychology could be of real social significance in such areas as education, industry, and commerce (Samelson 1977, 1979). Dunlap, like a number of other academic leaders at this time, sought to realize these possibilities by building his department into an efficient academic workshop designed to produce a constant stream of both research and trained professionals. While only twelve doctorates had been granted between 1903 and 1922, in the following decade an average of five were conferred each year, almost half of these to women. Dunlap and the junior faculty he gathered, largely from among his own students, developed an eclectic program that sought to combine training in useful skills, such as testing, with a strong commitment to methodological rigor. He campaigned for the value of solid experimental work and against such "fads" as psychoanalysis (Dunlap 1929).

In this context, the laboratory became a general term describing the department's workspace, constantly changing with the flow of graduate students. And as the number of students grew, availability of research facilities became the most significant factor limiting the department's growth. The theme of correspondence between the psychologists and the university administration, which during Watson's years revolved around salary and research funds, shifted to enrollments and the crying need for room. As Dunlap recalled a few years later, "the laboratory was seldom untenanted between the hours of 8:30 AM and 2:00 the next AM. We had reached, by 1926, a condition of absolute saturation, and it did not seem possible to continue either graduate instruction or research" (Dunlap 1932).

This problem appeared solved in 1926 when psychology moved from the Gilman Hall attic to the Johns Hopkins Hospital's vacant Home for

Crippled and Orphaned Colored Children adjacent to the Homewood campus. The expansion enabled Dunlap to create a new child development institute, and outside grants soon came in, including \$2,500 from the National Research Council to study "the effects of copulatory work on learning in the white rat," and \$8,900 from Old Gold Cigarettes for research on the psychological effects of smoking. The department's official budget nearly doubled between 1925 and 1931, and the number of faculty increased from four to six.²²

This period of good fortune, however, did not last. In 1930, the federal government condemned the property on which the psychology building lay in order to expand the adjacent Marine hospital. The university administration initially proposed to build new temporary quarters on the campus; Dunlap agreed, though he warned that activities would be hampered seriously if they were restricted to such a building for more than a few years. But financial problems resulting from the Depression soon led to cancellation of even this plan, and in 1931 the psychology offices were dispersed into various corners of the campus.²³

With this turn of events, relations between the psychologists and the administration began a long process of deterioration. Dunlap's recommendations for promotion were refused. When he was requested in 1933 to shorten his annual report (to be printed in the university's *Circular*), he replied testily that the only appropriate statement would be that "the activities of the Department of Psychology have been as near to normal as has been possible in its reduced circumstances." In 1935, Dunlap was warned that further reductions were a real possibility, and so the next year he accepted a professorship at the University of California at Los Angeles. A committee to consider the future of psychology did not recommend a replacement. His close associate, Roy Dorcus, followed him west a year later after being given notice of termination, and Buford Johnson, director of the child development institute, retired at age fifty-eight. Two junior faculty lingered until 1941, when President Isaiah Bowman abolished the department completely.²⁴

Activity did not begin again until the very different circumstances after World War II. Psychologists had demonstrated their value during the war in areas extending from personnel selection and system design to troop morale and propaganda. Clifford T. Morgan, a former instructor at Harvard who had shifted from rat work to human engineering during the war, was given the task of reestablishing the psychology department in 1946. He drew upon his military contacts to hire a number of assistant professors, including Neil Bartlett, Alphonse Chapanis, Wendell Garner, Eliot Stellar, and Stanley Williams; they were joined by G. Wilson Shaffer, then both dean of the College of Arts and Sciences and professor of physical education. These men (women were not hired and were discouraged from

applying to the graduate program) formed the nucleus of the program that has continued to the present day.

Conclusion

The history of psychology at Johns Hopkins exemplifies the rapidity with which the field changed in the half-century between the 1880s and the 1930s. Such change was not merely in the creation of new theories or "schools," nor was it a smooth process of expansion. Rather, the field's scope and relations with both other academic disciplines and with society at large were in flux. The status of the laboratory in the four phases of the Johns Hopkins department exemplifies these transformations. In the 1880s, its primary function was to symbolize a new intellectual attitude toward philosophy that would harmonize with the modern educational goals of Johns Hopkins. Twenty years later, it was one element of a comprehensive intellectual program that linked biology, philosophy, psychology, and education. With Watson it became a center for individual research in the style of "pure science" advocates and with Dunlap the core of an integrated enterprise in graduate training and "normal science." None of these roles was exclusive of the others, and none was completely restricted to one point in time, but they do represent a sampling of the meanings that the laboratory had in the first half-century of American academic psychology.

Johns Hopkins's flexibility kept it at the academic forefront. Given the department's small size, the periodic changeover in personnel put the university in the position more than once to sponsor a new direction psychology. It was able to hire relatively young faculty and provide them a clear field for work; under these circumstances, each professor moved rapidly to realize an independently conceived plan to influence the academic landscape. And psychology as a whole was small enough and open enough that individual effort could make a major difference. The situation at Johns Hopkins thus provided a base for a number of crucial shifts in the field's direction. The openness of that situation, however, came at a tragic personal and professional cost. The intellectual careers of Baldwin and Watson effectively ended with their resignations from the university, and the influence of each was fatally damaged. Furthermore, the process by which psychology progressed through radical changes itself exacted an eventual penalty.

In the mid 1930s, the university presidents Joseph Ames and Isaiah Bowman actively sought to dissolve the department of psychology. The Depression provided the basic incentive for retrenchment, and the department's bad luck in losing its building—essential to the work Dunlap had fostered—made it a particularly obvious target for cutbacks. Sexism was

also increasing, and any department that trained large numbers of women was suspect. But administrators were also making a judgment on the history and intellectual status of the field. In 1936, explaining his lack of concern for replacing Dunlap, Bowman recalled that when he had studied psychology at Harvard around 1900, its value had been "through learning factually and in detail that [he] had a mechanism and that [he] might do something with it by conscious effort." He felt that the field had unfortunately failed to realize the "high hopes" of those years.²⁵ Psychologists, of course, had abandoned such a naïve formulation of their aims long before. Encouraged by institutions such as Johns Hopkins, they had explored a variety of new problems and approaches. But men like Bowman, indoctrinated as students with the ideas Hall and his followers had promoted in the 1880s and 1890s, continued to judge the field by the standards they had learned, and they found it easy to dismiss the achievements of the intervening years. Such a result was not surprising. The irony was that it was Dunlap—of all the Johns Hopkins professors the most committed to solid professional development—who was caught by this survival from the past.

Appendix 2.A Faculty in Psychology, 1876–1984

- G. Stanley Hall* Lecturer—Professor of Psychology and Pedagogy, 1881–1888
Henry H. Donaldson Instructor—Associate, 1885–1888
Edmund C. Sanford Instructor, 1888–1889
William H. Burnham Instructor, 1888–1889
J. Mark Baldwin Professor of Philosophy and Psychology, 1903–1909
John W. Baird Assistant, 1904–1906
George M. Stratton Associate Professor, 1904–1908
Christine Ladd-Franklin Lecturer in Logic and Psychology, 1904–1909
Knight Dunlap Instructor—Professor, 1906–1936
Edward F. Buchner Professor of Education and Philosophy—Professor of Education, 1908–1929
John B. Watson Professor, 1908–1920
William D. Furry Instructor, 1909–1910
Karl S. Lashley Bruce Fellow—Johnston Scholar, 1914–1917
Otto R. Ortman Instructor, 1920–1924
Buford Jeanette Johnson Associate Professor—Professor, 1920–1938
Schachne Isaacs Instructor—Associate, 1921–1928
Roy M. Dorcus Associate—Associate Professor, 1925–1937
Henry C. McComas Lecturer, 1928–1936
Willie May Cook (Mowrer) Instructor, 1931–1935
Willis C. Beasley Instructor, 1931–1935
Samuel M. Newhall Instructor, 1935–1941
John M. Stephens Associate in Education—Professor of Psychology, 1930–1966

- G. Wilson Shaffer Associate Professor—Professor, 1938–1975; Professor Emeritus, 1975–present
- Clifford T. Morgan Associate Professor—Professor, 1943–1958
- William C. H. Prentice Instructor, 1943–1947
- Reginald B. Bromiley Instructor, 1945–1948
- Neil R. Bartlett Assistant Professor, 1946–1948
- Stanley B. Williams Assistant Professor, 1946–1948
- Wendell R. Garner Instructor—Professor, 1946–1968
- Eliot Stellar Instructor—Assistant Professor, 1946–1954
- Alphonse Chapanis Instructor—Professor Emeritus, 1946–present
- Howard D. Baker Instructor, 1948–1950
- Jack W. Gebhard Assistant Professor, 1948–1950
- Richard S. Lazarus Assistant Professor, 1948–1953
- James E. Deese Assistant Professor—Professor, 1948–1973
- Randall M. Hanes Instructor—Assistant Professor, 1949–1951
- Charles W. Eriksen Instructor—Assistant Professor, 1949–1956
- Robert B. Sleight Assistant Professor, 1950–1951
- Lawrence T. Alexander Instructor, 1950–1951
- Hudson J. Bond Instructor, 1950–1952
- Harold W. Hake Instructor—Assistant Professor, 1950–1955
- Ward D. Edwards Instructor, 1951–1954
- Robert S. Lincoln Research Associate, 1954–1955
- Marvin E. Shaw Research Associate, 1954–1955
- Willard F. Day Research Associate, 1954
- Mary S. Ainsworth Lecturer—Professor, 1956–1975
- Clinton B. DeSoto Instructor—Professor, 1956–present
- Leon Otis Assistant Professor, 1957–1961
- Stewart H. Hulse Instructor—Professor, 1957–present
- Leonard Martin Assistant Professor, 1961–1963
- James S. Myer Assistant Professor—Associate Professor, 1963–1972
- Warren Torgerson Professor, 1965–present
- William Bevan Professor, 1966–1973
- Julian C. Stanley Professor, 1967–present
- Howard Egeth Assistant Professor—Professor, 1965–present
- Robert Hogan Assistant Professor—Professor, 1967–1982
- Carnot E. Nelson Assistant Professor, 1967–1971
- William D. Garvey Professor, 1965–1984
- Bert F. Green, Jr. Professor, 1969–present
- Elliott M. Blass Assistant Professor—Professor, 1969–present
- David S. Olton Assistant Professor—Professor, 1969–present
- Roger A. Webb Assistant Professor, 1971–1974
- William S. Stark Assistant Professor, 1973–1979
- Milton E. Strauss Associate Professor—Professor, 1974–present
- Alfonso Caramazza Assistant Professor—Professor, 1974–present
- Stephen M. Kosslyn Assistant Professor, 1974–1978

- James P. Pomerantz* Assistant Professor, 1974–1977
Judith Hall Assistant Professor, 1976–1980
Michael McCloskey Assistant Professor—Associate Professor,
 1978–present
Maury Silver Assistant Professor, 1979–1984
Alan B. Zonderman Assistant Professor, 1979–1983
Jason Brandt Assistant Professor, 1981–present
Richard Katz Assistant Professor, 1981–1984

Appendix 2.B Doctors of Philosophy, Department of Psychology, 1876–1984

- 1886 Joseph Jastrow
 1888 Edmund C. Sanford
 1909 N. Trigant Burrow
 1912 Harry Miles Johnson and George Ross Maurice Wells
 1913 Gardner Cheney Basset and John Linck Ulrich
 1915 Helen Hubbert Caldwell
 1916 Mildred Loring Sylvester and Buford Jeanette Johnson
 1917 English Bagby and Howard Crosby Warren
 1920 David June Carver and Wilbur Harrington Norcross
 1921 Curt Paul Richter
 1923 Harold Clyde Bingham, Mildred Elizabeth Day, Istar Alida Haupt,
 Stella Agnes McCarty, Carl Allanmore Murchison, Margaret Laura Potter,
 Elizabeth Mattingly Stalnaker, and Gin Hsi Wang
 1924 Bertha May Boody, David Brunswick, Helen Elizabeth Eagleson, James
 Quinter Holsopple, Dorothy Wilson Seago, Selden Palmer Spencer, and Isabel
 Clarissa Stewart
 1925 Robert Lee Bates, Roy Melvin Dorcus, Abraham Leonard Finesinger,
 Elaine Flitner Kinder, and Edith Totten
 1926 Earnest William Atkins, Muriel Whitbeck Brown, Lenoir Henderson
 Burnside, Vivian Ezra Fisher, and Louise Anna Nelson
 1927 Robert Morriss Browning, Christian Paul Heinlein, and Louis William
 Max
 1928 Evelyn-Wylie Betts, Edith Sibyl Bryan, Elizabeth Duffy, Emily Oothout
 Lamb, George Wilson Shaffer, and Bruce Albion Wentz
 1929 Julia Elizabeth Heil Heinlein, Charlotte Rice, and Gregory Schramm
 1930 Laurence Armstrong Petran, Magda Voyer Skalet, and Roberta Stevens
 White
 1931 Willie Mae Cook, Max Friedrich Eduard Hausmann, Eugenia Ketter
 Linus, Dwight Warren Miles, and Virginia Lafayette Nelson
 1932 Elinor Lee Beebe, Pauline O. Eigler, Evelyn Gentry, Robert Clifton
 Lumpkin, Joseph Eugene Morsh, and Orval Hobart Mowrer
 1933 Wendell Lavon Gray, Robert Hamilton Peckham, and Vernon Phillip
 Scheidt
 1934 Sarah Calista Dunlap and Ruth Taylor Melcher

- 1935 Martha Elizabeth Thrum
- 1936 Thomas Willard Harrell, Clarence Daniel Leatherman, Frances Williams McGehee, Harold Clair Phillips, Carlton Edwards Wilder, and Thornton Woodward Zeigler
- 1938 Elwood Ross Harrison and Florence Jennings
- 1939 Virginia Kagy and Henry Clay Smith
- 1941 Reuben Albert Baer
- 1942 Martin Benzyl Macht
- 1947 Reginald Beswicke Bromley
- 1948 Eckhard Heinrich Hess, John David Reed, Irving Jackson Saltzman, and Anchard Frederic Zeller
- 1949 Joseph Michael Doughty, Frank Loren Smith, and Alex Lewis Sweet
- 1950 Roland Carl Casperson, Charles Percy Fonda, Randall Melville Hanes, Jack Roy Strange, and John Peter Zubek
- 1951 Michael Leyzorek and Robert Altwig McCleary
- 1953 James Weber Carper, Ray Hyman, Sonia Fellner Osler, and William Thomas Pollock
- 1954 Peter Dock Bricker III, Virgil Ruben Carlson, Rita May Halsey, and Philip Tietelbaum
- 1955 Peter Michael Lewinsohn and Carroll Vance Truss
- 1956 Emanuel Averbach and Frederick Alexander King
- 1958 Charles Ray Brown, James Louis Kuethe, Jr., Natalia Potanin, Iris Comens Rotberg, and John Forrest Strickland
- 1959 Robert Emmett Murphy, Sheila Murphy Pfafflin, and Richard August Wunderlich
- 1960 Daniel Martin Forsyth, Royal Joslin Haskell, Jr., Kenneth Walker Haun, Leonard Martin Horowitz, and Robert Lee King
- 1961 Daniel Harris Carson, Elliot Myron Cramer, Miriam Aronstein Safren, Harry Leroy Snyder, and Maurice Martin Taylor
- 1962 Winthrop Edward Bacon, John Joseph Bosley, Edmund Benedict Coleman, Jr., and Insup Kim
- 1963 Barry Franklin Anderson, Mark Aaron Berkley, Wayne Clement Lee, Gerald Reubush Miller, and Henry Allen Schwartz
- 1964 David Eastman Clement, George Ernest MacKinnon, Tapas Kumar Sen, and Herbert Weingartner
- 1965 Douglas Gant Pearce and Gregory Roger Lockhead
- 1966 Louise Poorman Baenninger, Ronald Baenninger, Herbert Horace Clark, Shiro Imai, Harald Richard Leuba, Marvin London, and Gretchen Schabtach
- 1967 Gail Messenger Albert, Herbert Haskell Blumberg, Stephen Jesse Handel, George Christian Jernstedt, and Patrick Leith Ross
- 1968 William Preas Banks, Stanley Clinton Collyer, Richard Leroy Degerman, Richard Landolin Gottwald, Bernard Adolph Gropper, Nancy Main Henley, Michael Geoffrey Johnson, Nancy Rowena Kingsbury, Donald Aaron Mankin, Lorraine Coogan Scarpa, and Nicholas Zill
- 1969 Silvia Visscher Bell, Mireille Franke Bertrand, Robert Bruce Horsfall, Suellen Safir Ruben, and Marilyn Demorest Wang

- 1970 David John Fruin, Donna Province Grill, Juliet Rapaport Phillips, Steven Eric Suter, Paul Eugene Van Hemel, Susan Bobbe Van Hemel, and Hilda Wing
- 1971 Howard Steven Hock, Robert George Pachella, and Herbert Leon Petri
- 1972 Ellen Barbara Dickstein, Joel Francis Gordon, Judith Andrea Jacobson, and Mark Willard Lipsey
- 1973 Mary Patricia Blehar, Esther Blank Greif, Marion Mayes Jacewitz, William Marshall Kurtines, and Stephen Robert Snodgrass
- 1974 Alfonso Caramazza, Matthew Isle Dobrow, Lynn Hussey Fox, Bruce Wayne Hamill, Daniel Patrick Keating, Mary Louise Biggart Main, Robert Bruce Ochsman, Robert Neil Parrish, Fred Albert Skellie III, and Jack Benjamin Yates
- 1975 Inge Bretherton, Leo David Geoffrion, Grover Cleveland Gilmore, Richard Jay Haier, Warren Grimes Hall, Frances Ellen Steinberg Harnick, Craig Thurlow Johnson, Michael John Kelly, Frederick Scott Kraly, Mary Ellen Phillips Oliveri, Charles Monroe Overbey, Thomas Robert Pentz, and Gerald Dermot Weeks
- 1976 Lloyd Bond, Fred Harrison Gage III, David Stanley Goldstein, Gary Don Gottfredson, Ellen H. Grober, Betty Bosell Hardee, Harry Morton Hersh, Alicia Fridman Lieberman, Peter Vincent McGinn, Dale McClure Simpson, and Mary Joyce Cowan Viernstein
- 1977 Mohammed Bendebba, Rita Sloan Berndt, Stephen D. Gottfredson, Gerald Peter Krueger, Kathy Charmaine Sanders, Cecilia Helene Solano, Ralph Brecken Taylor, Martin Hersch Teicher, and Peter John Whitehouse
- 1978 Hiram Henry Brownell, Catherine Ellen Campbell, Karen Harriet Heldmeyer, Thomas Grover Land, Carol Jane Mills, Lawrence Cooper Sager, James Gale Simmons, John Allan Walker, and Ann Leonore Weber
- 1979 Mark Harold Bradshaw, Stephen Paul Daurio, Karin Gale Hu, Randi Christine Martin, Paul Roller Michaelis, Diane Mahony Monrad, and Steven Philip Schwartz
- 1980 James Thompson Becker, Mark Allan Brecht, John Paul Bruno, Sanford Jay Cohn, Carl Mark Francolini, Douglas Gordon Hoecker, Peter David Pagerey, Michael Lewis Stoloff, and Sally Noetzel Wall
- 1981 Virginia Wise Berninger, Wayne Everett Bohannon, William Randolph Ford, Barry Gordon, Amy Gene Halberstadt, Gail Ellen Handelmann, Patricia Elizabeth Pedersen, Jeffrey Lyle Santee, Timothy Allen Satalich, and Robert Dale Smither
- 1982 Jonathan Mansfield Cheek, Catherine Patricia Cramer, Stephen Bruce Fountain, John Anthony Johnson, Mary Anne Johnson, Timothy Hayes Moran, Karen Angelyn Nolan, Cynthia Sherrill Rand, Joan M. Roemer, and M. Jeanne Sholl Smith
- 1983 Catherine Mary Busch, Carol-Ann Marie Emmons, Shalini Gupta, John Falk Kelley, and David Hugh Schroeder
- 1984 Margaret Marcus Hale, Margaret May Hamilton, Kathleen Marie Potosnak, Susan Elise Spear, Robert Anthony Virzi, Maria Soledad Zaragoza, and Elizabeth Zoltan-Ford

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Notes

1. G. S. Hall to D. C. Gilman, 3 May 1880, 19 June 1880, Daniel Coit Gilman Papers (hereafter GP), Department of Special Collections, Milton S. Eisenhower Library, Johns Hopkins University.

2. Larry Owens, "Pure and sound government: Laboratories, lecture-halls, and playing-fields in nineteenth century American science," *Isis* (in press).

3. "Records of the metaphysical club: Minutes of proceedings, 1879-1885," Ferdinand Hamburger, Jr., Archives of the Johns Hopkins University (hereafter FHA).

4. Hall to Gilman, 9 October 1882, GP.

5. Hall to Nicholas Murray, 28 May 1882, GP.

6. Hall to Gilman, 9 October 1882, GP.

7. "Cash Book July 1876-August 1887," 14 January 1886, FHA.

8. Hall to Gilman, 13 March 1888, GP; Minutes of the Executive Committee of the Board of Trustees, 15 March 1888, Johns Hopkins University Office of the Secretary, Johns Hopkins University; E. C. Sanford, J. G. Hume, et al. to Gilman, n.d., GP.

9. J. M. Baldwin to I. Remsen, 25 July, 28 July, 29 July, 31 July 1903; Remsen to Baldwin, 27 July, 30 July 1903; Remsen to R. B. Keyser, 22 August 1903, Johns Hopkins University Presidents' Papers (hereafter JHP), FHA.

10. Baldwin to Remsen, 19 February 1904; G. M. Stratton to Remsen, 17 June 1904, JHP.

11. Hugo Munsterberg to Remsen, 8 February 1910; Remsen to Mrs. J. M. Baldwin, 28 December 1910; Henry D. Harlan to Mrs. Baldwin, n.d., not sent, JHP; *Baltimore News*, 6 March 1909; R. J. Richards, *James Mark Baldwin: Evolutionary bio-psychology and the politics of scientific ideas*, unpublished manuscript, 1983.

12. Baldwin to Remsen, 30 March 1909, 17 April 1909; Remsen to Baldwin, 12 April 1909, JHP.

13. J. B. Watson to R. M. Yerkes, 29 October 1909, Robert Mearnes Yerkes Papers, Yale Medical Library, New Haven, Conn.

14. Watson to Remsen, 4 September 1909; Remsen to Watson, 7 September 1909, JHP.

15. Watson to A. O. Lovejoy, 17 April 1910, A. O. Lovejoy Papers, Department of Special Collections, Eisenhower Library, JHU.
16. Ibid.
17. F. J. Goodnow to Watson, 18 March 1920, JHP.
18. Watson to Meyer, 13 August 1920, Adolph Meyer Papers, Alan Mason Chesney Medical Archives, Johns Hopkins University.
19. Meyer to Goodnow, 29 September 1920; Watson to Goodnow, 4 October 1920, JHP.
20. Watson to Remsen, 11 May 1911; Watson to Goodnow, 12 January 1920; Dunlap to Goodnow, 2 February 1920, JHP.
21. Dunlap to Goodnow, 13 October 1920, 3 January 1921, JHP.
22. Dunlap to Goodnow, 12 August 1927; Dunlap to J. S. Ames, 19 January 1929, JHP.
23. Ames to Dunlap, 6 October 1930; Dunlap to Ames, 4 April 1931, JHP.
24. Dunlap to Ames, 25 January 1932, 19 September 1933; Ames to Dunlap, 15 April 1935, JHP; "Report of the committee on psychology," Records of the Johns Hopkins University Academic Council, 8 April 1937, FHA.
25. I. Bowman to E. B. Wilson, 5 March 1936, E. B. Wilson Papers, Harvard University, Cambridge, Mass.

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