

FOUNDING THE PSYCHOLOGICAL LABORATORY
AT THE STATE UNIVERSITY OF IOWA
AN HISTORICAL SKETCH

In the summer of 1887 I received a telegram from the State University of Iowa asking if I would accept a position as Professor of Mental and Moral Science and Didactics at a salary of \$1800 a year. I replied in the affirmative and took up my duties at Iowa City in September of that year.

I had just completed the second year of graduate studies in philosophy and psychology at Johns Hopkins University. Previous to this I had studied three years at Yale, after graduating from the State University of Iowa.

At Johns Hopkins my major was philosophy and ethics, my first minor was psychology, and my second minor was economics.

Professor G. Stanley Hall was in charge both of philosophy and psychology and my work in these two subjects was with him. Dr. G. H. Emmott directed the ethics and Professor Richard T. Ely was in charge of the economics. My doctor's thesis on *Heraclitus of Ephesus* had been written, accepted, and published. It was first published complete in one number of *The American Journal of Psychology*, occupying the whole number. I had intended to return to Johns Hopkins for the third year to complete my studies and take my examinations for the doctor's degree, and had been appointed fellow in philosophy for the coming year, my second appointment as fellow there.

During my two years at Johns Hopkins, the psychological laboratory was in full swing. It had been founded by Professor Hall in 1883 at the time he was elected to the

professorship of psychology. Hall had spent nearly six years in Germany studying first at Bonn and Berlin and afterwards at Leipzig where he went to hear Wundt and where he spent about two years, hearing Ludwig, the physiologist, and conducting a research on the physiology of the muscles. Wundt's psychological laboratory had been established at the University of Leipzig in 1879 and Hall became familiar with it there.

During his stay in Germany, Hall wrote a series of articles for *The Nation*, describing all the new and advanced movements in Germany in those vigorous years. Some of these articles related to the new experimental and physiological methods of studying psychology. All this new and fresh material he brought with him to Johns Hopkins University, and the laboratory was patterned after that of Wundt at Leipzig. It was the first psychological laboratory in America, though William James had done some experimental work with the physiological apparatus.

The Johns Hopkins laboratory was well equipped for research and demonstration and numerous researches were in progress. I think there was no course in laboratory or experimental methods for students, but the spirit of experimental and physiological psychology pervaded all our work. Among my associates were E. C. Sanford, William Burnham, and J. H. Hyslop, and Joseph Jastrow was there during my first year. Sanford was engaged in a research on the relative legibility of the small letters of our alphabet, which became later, I think, the subject of his thesis for his doctor's degree. I remember that some one remarked that Sanford could distinguish the letters, P, H, and D farther than any others.

It is well to pause here to recognize the immense influence upon the development of psychology in American universities of German culture as expressed in the "stupen-

dous outburst of intellectual energy" in Germany during the twelve years beginning in 1870. To G. Stanley Hall belongs the credit of bringing to America a large measure of this new culture. It was disseminated by him first through his letters to *The Nation*, then through his lectures in Boston, Cambridge, and Baltimore, then through his students at Johns Hopkins, and finally through *The American Journal of Psychology* and his many books and articles. In addition to the students already mentioned, there were other notable men such as John Dewey, Henry H. Donaldson, and J. M. Cattell, who carried the influences of Johns Hopkins to their respective universities. Wundt's *Outlines of Physiological Psychology*, published in 1874, became a kind of text-book in American laboratories.

Some of this influence I brought to Iowa. Almost from the beginning, I gave courses in German psychology and philosophy. I myself made five visits to Germany, being matriculated both in the University of Berlin and in Leipzig. At the latter, I spent nearly a semester, heard Wundt and Külpe, and did a little work in the laboratory. With the help of my wife I later translated Külpe's *Philosophy of the Present in Germany* and this was published in England. The first instruments I used in my laboratory for class demonstrations were those I had seen Wundt use before his classes at Leipzig.

When in September, 1887, I took up my work at Iowa, where I had graduated with my A. B. degree nine years before, the University of Iowa had already passed beyond the stage of early nineteenth century American colleges, whose presidents were chosen from the religious ministry and who themselves gave whatever courses there were in what was called mental and moral science. President Josiah L. Pickard, who left Iowa that same year, had been superintendent of schools in Illinois. A separate chair had been held previous to my election by Professor Stephen

N. Fellows, who had been giving a course in "Mental Science" in the fall and spring, a course in "Moral Science and Evidences of Christianity" in the winter term, and a ten weeks course in the "History of Philosophy".

President Charles A. Schaeffer was the newly elected president, joining the University when I did in September, 1887. He had been Dean at Cornell University in New York and Professor of Chemistry there and was liberal and progressive in every way. Professor Laenas G. Weld and Professor William R. Perkins also came to Iowa that year. President Schaeffer encouraged me in every way in building up my department, and gave me a free hand in all things.

In this connection I should say that my university experience lends no support to the charge which I have so often heard brought against our universities that academic freedom in teaching is limited by interference from political or religious sources or by the influence of alumni or administrators. I have taught at Iowa under five Presidents — Presidents Charles A. Schaeffer, George E. MacLean, John G. Bowman, Thomas H. Macbride, and Walter A. Jessup, and one year under Professor Amos N. Currier as Acting President. Never during all this time have any influences been brought to bear upon me as to what or how I should teach, or what I should refrain from teaching. My freedom has been complete, and my support always sympathetic. In the teaching of philosophy, I avoided espousing any particular system. I recall that G. Stanley Hall at Johns Hopkins took great care to present sympathetically each philosophical system in turn as it presented itself in the history of thought, leaving the student to work out his own system. This method I tried to pursue at Iowa, particularly in the history of philosophy. In later years in my course, Introduction to Philosophy,

which gradually became a kind of standard course, I freely gave my students the results of my own thinking.

During my first year, the northeast room on the first floor of the Old Capitol was assigned me for my classes. I well remember my first lecture. Good old Professor Moses Soule of Lyons (now Clinton), Iowa, who, when I was a boy of fifteen, gave me lessons in Latin and Greek and awakened my love for the classics, had presented me with a small cane when I was elected to the position at Iowa. It was made from a thorn which he had cut on the banks of the Androscoggin River in Maine about the year 1840, and which in its pristine form he had used to inspire respect for the classics in his pupils by the the direct method. After it had served this purpose for many years, he had fitted it with a whaletooth head and used it for a cane. On the morning of my first class, I brought the cane to my lecture room and stood it up in the corner as a mascot, hoping that in some mystic way the wisdom of its original owner would seep through to my students.

My first classes were small but they grew rapidly from year to year. I had a commodious lecture room each year and it was usually well filled, the logic class soon requiring two sections. The logic taught was of the old Aristotelian type, but the students often reported later that they had received great benefit from this course. It was always my ambition to give a special popular course in the logic of daily life tracing out the countless fallacies occurring in all written and spoken forms of inference, but this was never realized. Such a study could be made very helpful.

For the first year I offered the following courses, all of which I think were elected and given:

Empirical Psychology, five hours, one term.

Logic, five hours, one term.

History of Greek Philosophy, three hours, one term.

History of Modern Philosophy from Descartes to Hegel, three hours, one term.

Ethics, five hours, one term.

Experimental Psychology, including an introductory study of the nervous system; relation of stimulus to sensation; time relations of mental phenomena; localization of cerebral function, three hours, one term.

Recent Philosophy in Germany and England — Schopenhauer, Hartman, Lotze, Wundt, Helmholtz, Spencer, Darwin, two hours, one term.

All the above courses were lecture courses, except the Logic and Elementary Psychology, in which a text was used.

In the early spring of my first year at Iowa, I received a letter from G. Stanley Hall at Johns Hopkins University, saying that he was leaving Baltimore, having been elected President of the newly established Clark University, and suggesting that I return and take my examinations for my doctor's degree. I lost no time in accepting this generous invitation, and began working night and day preparing for the examination, while at the same time writing my lectures for the new courses which I was giving. President Schaeffer gave me leave of absence in the latter part of May, kindly taking at least one of my classes himself. I returned to Baltimore, passed my examinations, and received the degree of Doctor of Philosophy.

The courses which I gave in the two years following — 1888-1889 and 1889-1890 — were about the same as during the first year, except that I omitted the course in recent philosophy and introduced a Seminar in Psychology, meeting once a week, on Tuesday evening. This, I believe, was the first use of the seminar method at the University. Thereafter I had one or more seminars each year.

In my fourth year, 1890-1891, some changes were made.

Ladd's *Outlines of Physiological Psychology*, which was published in 1887, was used as a text. The course in Experimental Psychology was now called Advanced Psychology, and described as laboratory work in psychophysics, time relations of mental phenomena, etc. I also introduced a Memory Class, in which we studied the theory of memory and methods of memory training. The course in Ethics was divided into two courses: Theoretical Ethics and Practical Ethics. The latter was devoted to Charities and Corrections, and I gave public lectures on this subject in Burlington and other Iowa cities. I also gave a course of lectures, six, I think, in Waterloo and Cedar Rapids. The subject of these two courses was the New Psychology, and they were illustrated with certain apparatus. Later I gave another course of lectures on the same subject in Cedar Rapids, and single lectures in other places.

In the next year, 1891-1892, the work was the same as in the preceding year, except that a Seminar in Plato's Republic was substituted for the Seminar in Psychology.

During 1892-1893, the regular course in psychology was extended to two terms, five times a week, instead of a second term of advanced psychology, and James was used the first term as a text. The course in philosophy was also extended to three terms, three hours a week, and a second seminar was added in philosophy.

It was in this year that I acquired new and delightful rooms for the department with separate rooms for the laboratory. I had moved that year from the northeast room of the Old Capitol to the southeast room, the one now occupied by the President's secretaries. The building at No. 14, Clinton Street, now occupied by the School of Music, was originally used by the Homeopathic Medical School. When their new building on Dubuque Street was completed, I saw an opportunity of realizing at last my

ambition to have a real psychological laboratory. I petitioned for the whole lower floor of the Clinton Street building, and received it. We had a large, pleasant lecture room, a library and reading room, and three laboratories.

In the two years following, no important changes were made in the list of courses. But in 1895-1896, the department was enlarged by the coming of an assistant in the person of Dr. J. Allen Gilbert, who had specialized at Yale, where he took his doctor's degree in experimental and laboratory psychology. I had for several years been urging the appointment of a laboratory assistant fully acquainted with the technique of psychological apparatus and experimental methods. Dr. Gilbert proved fully equal to his task and contributed a great deal to the development of the psychological department. The general course in psychology was extended to five hours a week from Thanksgiving to the end of the spring term. James, Külpe, Sanford, Wundt, and Ladd were used as references and for assigned reading. Dr. Gilbert and I conducted the course. Dr. Gilbert gave two courses in Experimental Psychology, one an Introductory Laboratory Course, and the other an Advanced Course in Original Research, open only to graduate students. He also gave a course in Abnormal Psychology, and I added one in Comparative Psychology. Gilbert gave a Seminar in Modern Philosophy and I gave one in Greek Philosophy. In 1896-1897, the work was much the same, but Dr. Gilbert gave a course in the Psychology of the Child and I gave one on the Philosophy of Nature. The latter was for graduate students. There was also a course entitled Special Research in Psychology by Dr. Gilbert, laboratory work, and theses. One or two of the courses given in the preceding year were omitted. At the close of his second year, Dr. Gilbert resigned and went east to take up his special work in medicine.

This brings us down to the year 1897 when Dr. Carl E. Seashore came, taking the place of Dr. Gilbert and gradually laying the foundations for the remarkable expansion of the department of psychology with which we are all acquainted. The time for greater specialization had come, and I was gradually able to devote myself more and more to philosophy in which I had taken my major at Johns Hopkins.

THE PSYCHOLOGY LABORATORY

When I came to Iowa, in 1887, psychological laboratories were unknown to western universities, and no eastern university or college except Johns Hopkins had such a laboratory, although Cattell, I believe, opened his at Pennsylvania in this year. Until 1888, there was not a professorship of psychology under that name alone, either in Europe or America. In that year, Dr. Cattell was invited to the University of Pennsylvania and bore the title of Professor of Psychology. From my very first year at Iowa, however, I had in mind no other plan than to have a psychological laboratory both for demonstration and research. In my first annual report to President Schaeffer, I explained the matter fully, and urged an appropriation for apparatus. Of course it was not easy to get money for such a new enterprise, but in 1890 I was granted an appropriation of \$175 for apparatus, and \$75 per year was granted after that. But I had from my first year an appropriation of \$50 a year for general supplies for the department, and with this amount I had made a beginning. Each year I began the course in psychology with the study of the anatomy of the brain. In the fall of my second year, in 1888, I think, my class, which met in the room now occupied by the President's secretaries, was somewhat startled by the appearance of a sheep's brain on my desk. A few of the students met with me to dissect it.

In this connection I think I should note that no opposition was ever encountered either from students, faculty, or president to this or any other departure from the older methods of studying the mind. Some of them may have wondered, but we always received loyal support. It was during the second year also that we procured from Germany our first apparatus, consisting of a set of six tuning forks, mounted on resonators, and also a large dissectible model of the human brain, and other models of the brain, ear, and eye. These, I think, may still be seen in the laboratory. We also had many charts made for illustrating the nervous system, special senses, illusions, etc. For this apparatus, a large case with glass doors and later a second one, stood in the end of the lecture room near where Miss Hotz's desk now stands. In the University Catalogue of 1890-1891 occurs the following announcement under the heading, "The Psychophysical Laboratory":

"The Psychophysical Laboratory is designed for the experimental study of psychology. Only a beginning has been made thus far, but at present apparatus is provided for testing the psychophysic law, for the measurement of reaction times, for testing color blindness, for mixing colors by rotating discs, and for exhibiting the structure of the brain and nervous system."

Again in the catalogue of 1894-1895 we read: "The Psychological Laboratory occupies the lower floor of the brick building . . . formerly used by the Homeopathic Medical Department. It includes a commodious lecture, library and reading room, and three quiet and well lighted laboratory rooms.

"The present equipment of apparatus is as follows: Fifty wall charts illustrating nervous system, special senses, illusions, etc.; Anzoux's dissectible model of the brain; five Steger models of the brain, ear, and brain of

orang-outang; rotation apparatus, with sets of disks for illustrating mixing of colors and color contrast (from Krille); set of six tuning forks with resonance boxes, for illustrating harmony, beats, sympathetic vibration; Hipp chronoscope with electrical connections, two reaction keys and one five-finger reaction key; instantaneous exposure apparatus; tachistoscope (after Wundt's model); series of 22 Koenig cylinders for highest audible note; aesthesiometers; brass cylinders, for demonstration of heat and cold spots; metronome; dark box; small rotation apparatus; loaded boxes for testing psychophysic law; sound pendulum (by Krille); apparatus for testing color-blindness; minor pieces for miscellaneous use."

During the two years following, when Dr. Gilbert was connected with the department, further apparatus was added, but I do not have an itemized statement of it.

An examination of the above dates is interesting in connection with the time of the founding of psychological laboratories in other universities. As noted above, the laboratory at Johns Hopkins was founded in 1883. In 1887, Cattell opened the laboratory at the University of Pennsylvania and Joseph Jastrow founded the laboratory at Wisconsin in 1888. Hence it would appear that our laboratory at Iowa was among the very first to be opened. It is also evident that all the early laboratories were in large measure modeled after the one at Johns Hopkins.

RESEARCH AND PUBLICATIONS

In this brief historical sketch, I shall mention publications only so far as they relate to the developments in psychology and psychological research at Iowa. In my third year, in 1890, I published an article on the *Psychology of Prejudice* in *The Popular Science Monthly*, now *The Scientific Monthly*. This was the first of a series of thirteen articles with similar titles, relating to the psychology

of play, of football, of relaxation, of alcohol, of war, of daylight saving, etc., which were published in *The Scientific Monthly*, *The American Journal of Psychology*, *The Psychological Review*, and *The Pedagogical Seminary*, and in my books. The purpose of all these articles was to throw light upon these various urges and activities by reference to psychological principles and laws.

In 1891, I published an article on *Rivalry of the Higher Senses*, relating to eye-mindedness and ear-mindedness, and in 1893, an article on *Number Forms*. The latter may be entitled to the name of research since the number-forms were collected from or by my students. In 1895, Dr. Gilbert and I undertook an extended research on the effects of loss of sleep. In the second set of experiments, we kept three subjects awake for ninety hours, making a series of tests upon them every six hours to determine reaction-time, motor ability, discrimination, memory, etc. At the end of the ninety hours, we measured the depth of sleep by the strength of an electric current sufficient to awaken the subject. The results were published in *The Psychological Review* and in the first volume of our *University of Iowa Studies in Psychology*, edited by Dr. Gilbert and myself, and published in 1897. It contained also a research by Dr. Gilbert and G. C. Fracker upon the effect of practice in the discrimination of sound upon the discrimination for other forms of stimuli, and a research on school children and college students by Dr. Gilbert.

In 1897, I made a series of experiments in investigating a case of automatic writing and published the results in an article in *The Psychological Review* in November, 1898, under the title, *Some Peculiarities of the Secondary Personality*. This was reprinted in the second volume of our *Iowa Studies*, which I edited in 1899. Much of the work of the second volume, however, fell upon Dr. Seashore.

In 1898, I discovered an interesting case of anosmia. The subject was the wife of one of the professors in the University who was wholly devoid of the sense of smell. A long series of tests was made upon her and upon control subjects, with foods, drinks, and drugs of all kinds, to determine the part taken by the senses of taste and smell in such perceptions. The results were published in the second volume of the *Iowa Studies* under the title of *On the Analysis of Perceptions of Taste*.

It does not belong to the purpose of this paper to carry the history of the researches in the psychological laboratory or the development of the laboratory itself beyond the year 1897.

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