Introduction to Section I: The Founding of Laboratories and Courses

1. In this introduction to the early experimental psychology laboratories and courses, I will briefly introduce each of the papers included in Section I. Most of these articles are primary reports of labs and courses by the people who established them, but also included are reviews by other interested parties. Also included is one piece written for historical purposes by one of the main players decades after the events in question.

2. The founding of experimental laboratories was one of the most important developments in the institutionalization of psychology as a natural science. Not only did laboratories provide a permanent and specialized location for psychologists to collect their data; they also constituted a signal to the other established sciences, to universities administrations, to governments, and to society as a whole that psychology was to be regarded as a branch of natural science in its own right. It has been conventional to say that the first experimental psychology laboratory was established by Wilhelm Wundt at the University of Leipzig in 1879. "Firsts" like this are a standard part of the "origin myths" that sciences employ to establish their historical credibility. And without doubt, there are good reasons to confer this "honor" upon the Leipzig lab: it was the first permanent laboratory established primarily for the purpose of carrying out experimental psychological research. On the other hand, stories such as this are very often oversimplifications of complex truths, repeated over and over again much like political slogans. Consider, Ernst H. Weber and Gustav T. Fechner carried out their groundbreaking psychophysical research in their laboratories decades before the Leipzig lab was established. Why aren't they considered to be the "First" psychological labs? Much research that is generally considered to be psychological in nature was carried out in Hermann Helmholtz's Berlin lab, some of it by Wundt himself when he served
as Helmholtz's assistant. Why isn't Helmholtz's lab considered to be the "First"? Wundt himself carried out research using specially-devised instruments during his tenure in Zürich before coming to Leipzig. William James established a "demonstration laboratory" (i.e., one primarily dedicated to teaching rather than to primary research) in 1874, five years before Wundt's Leipzig lab. One can see here the difficulties with establishing clear historical firsts. Each lab had characteristics that the other ones did not, but the Leipzig lab seemed to contain all of the properties considered essential (or at least desirable) in an institution suitable to bear the symbolic label "First": it was permanent (until World War II, when it was destroyed), it was primarily for research, and self-consciously psychological research, but it was also used for training the next generation of professional experimental psychologists.

3. James McKeen Cattell's 1888 article, "The Psychological Laboratory at Leipsic" (an alternative spelling of Leipzig) contains his reminiscences about being trained there in the mid-1880s. It operates with an explanation and defense of experimental psychology, taking special care to distinguish it from its supposedly less-respectable cousins -- such a psychological research -- and aiming to place it in the company of the legitimate natural sciences found in the modern university. It then goes on to tell the story of Wundt's founding of the Leipzig lab, the establishment of Wundt journal, Philosophische Studien, and to make mention of the lab's presumed "progeny": other psychological labs in Germany and America, as well as new textbooks on the subject. Cattell briefly reviews the kinds of research conducted in the lab -- sensations, reaction-times, time-sense, as well as attention, memory and mental association. It is interesting to note that even at this early date -- not yet 10 years after the establishment of the lab -- Cattell describes Wundt not as intensively conducting research of his own, but rather as "visiting the laboratory everyday," being "glad to answer questions and give help" (p. 39). Much of Wundt's own work had moved on to other matters. Forty years later Cattell would give one further details of Wundt's attitude toward his lab in his Science article "Early psychological laboratories" (1928, p. 545). (For some recent reappraisals of Wundt, see, e.g., Blumenthal, 1975, 1998; Danziger, 1979, 1980a, 1980b; Farr, 1983; O'Neil, 1984.)

4. One of the first researchers to work in the Leipzig lab was American G. Stanley Hall, fresh from his Harvard Ph.D. under the supervision of William James. Upon his return to the U.S., in 1883, he established an experimental psychology lab of his own at Johns Hopkins University in Baltimore, MD. As far as we know, there is no published account of the founding of Hall's lab, the "First" in North America. It was not until the late 1880s, that other North American labs would be officially founded: Pennsylvania (Cattell), Wisconsin (Jastrow), and Indiana (Bryan) in 1888, and Clark (Sanford/Hall) and Nebraska (Wolfe) in 1889. A list of the supposedly first 117 is given in Garvey's "List of American Psychology Laboratories" (1929). The information Garvey gives was based on a mail-in survey taken decades after the first labs were founded, and so is not completely reliable, but the article is still a reasonable place to start exploring the spread of experimental psychology in North American universities.

5. In 1888 Hall left Hopkins to become President of the newly-established Clark University in Worcester, MA. He brought with him some of his Hopkins students, including E. C. Sanford, who he appointed to found the Clark experimental psychology lab the following year. By the start of the 1890s, new labs had been founded at Columbia (Cattell), Iowa (Patrick), Michigan (Tufts), and Toronto (Baldwin), and courses in experimental psychology were beginning to spring up at many schools. Although there were a few English-language textbooks of psychology on the market by this time (e.g., Ladd, 1887; Lotze, 1886), there was little in the way of detailed guides to laboratory practice. Sanford thus took it upon himself to publish a five-part "Laboratory Course Physiological Psychology" in Hall's American Journal of Psychology in 1891-93. It quickly became one of the most popular course texts in the U.S., being mentioned specifically in several other papers included in this Classics Special Collection. The "Course" contains detailed instructions for carrying out 169 experiments, all concerned with various aspects of sensation and perception.

6. The growth of James Mark Baldwin's Toronto lab, the "First" in what was then the British Empire, is particularly well documented: In 1891 Baldwin received a grant from the University to equip a psychology lab (see Green, 2000 for further details). That same year Baldwin (1891) published in Hall's *American Journal of Psychology* a call for "students or investigators" to propose purchases of apparatus they would need to carry out specific research projects (presumably in Toronto). The following year, Baldwin (1892) published in *Science*, a short description of the laboratory, including a floor-plan (see also Pantolony, 1997). In 1893 he was given permission to hire a senior lab assistant, and selected a man reputed to be one of Wundt's best, August Kirschmann. By the time Kirschmann arrived in Toronto, however, Baldwin had accepted an offer to return to his *alma mater*, Princeton, to establish a lab there. Kirschmann thus became *de facto* head of the Toronto lab, where he would stay for 15 years. In 1894, a paper about the program of courses in psychology then offered to students at Toronto, written by the Head of the Toronto Philosophy Department, James G. Hume, was presented (evidently by someone else) at the APA conference at Princeton. This paper's abstract was published the following year in Cattell and Baldwin's *Psychological Review* (Hume, 1895). When the lab was expanded in 1900, a full length article was published by Kirschmann's assistant, Albert H. Abbott (1900). Interestingly, however, the article is not primarily about the lab itself, but rather consists mainly of an extended justification of experimental psychology *per se*, along lines not unlike those taken up by Cattell over a decade earlier in 1888. It seems that legitimacy of experimental psychology was still not to be taken for granted even at the start of the 20th century.

7. The first experimental psychology lab established by a woman, for women students, was that founded at Wellesley College in 1891 by Mary Whiton Calkins -- a one-time student of James', and later to be the first Woman President of the APA. Her 1892 article, "Experimental psychology at Wellesley University," describes the course in the topic she developed and taught there. She used a number of resources -- part of Ladd's *Elements of Psychology* for brain physiology, Sanford's "Course" for experimental training, and portions of James' text for more philosophical topics. It seems that in some ways little has changed in the past 100+ years. She reports that although some student liked doing experiments, many carried them out "without especial enthusiasm" and that some "detested them from beginning to end" (p. 465).

8. The year 1893 was especially important for laboratory psychology because it was the year that the University of Wisconsin's Joseph Jastrow, a one-time student of Hall's, recreated a psychology laboratory for the public at large at the World's Columbian Exposition in Chicago. Jastrow (1893) wrote for the Exposition's Catalogue a detailed description of his display, including brief accounts of the experimental procedures he carried out on visitors willing to pay a small charge. A somewhat more personal and more detailed view of the experience of being worked through Jastrow's lab is to be found in M. Henry De Varigny's 1894 *Revue Scientifique* article, "Le Laboratoire de Psychologie Expérimentale de l'Université de Madison," which is published in translation here for the first time. The French showed a great deal of interest in the proliferation of American psychological laboratories. Three other reports -- two by M. Boudoin in *Archives de Neurologie*, and one by E.B. Delabarre (founder of the lab at Brown University) in the first volume of Alfred Binet's *L'Année Psychologique* -- were also published in 1894.

9. Jastrow's display provided information about a number of other psychological labs, both American and foreign, as well. Hugo Münsterberg, a one-time student of Wundt's who had been hired by James to found a research lab at Harvard in 1891, published an extensive description of the apparatus available at his facility, including prices of the dozens of pieces of equipment it held, along with the names and addresses of dealers of such equipment, and a bibliography of significant experimental works (Münsterberg, 1893a). Perhaps even most interesting are the many photographs of the lab and its contents. There can be little doubt that this pamphlet served to advertise the fact that, despite modest beginnings under James, Harvard now had one of the best-equipped labs in the world, and was "open for
business." Also included in the present collection is an article written by Münsterberg about experimental psychology and the Harvard lab published the same year in the Harvard Graduate Magazine (Münsterberg, 1893b). As with the Cattell (1888) and Abbott (1900) articles, this one begins with a defense of psychology against the various disreputable ventures with which it was often associated in the minds of the general public.

10. The following year, University of Illinois professor William Krohn (1894) published a survey of the experimental psychology labs then open in the U.S. as part of a general federal government report on the state of education in the country. It reveals a number of interesting things about the role labs played in American psychologists' opinion about their place in the psychological world. It is clear that they believed, perhaps correctly, that in the realm of scientific psychology, they were now the leading country in the world. The German labs may have been larger -- though even this is disputed by some of the contributors to Krohn's report -- but the Americans believed they now had more psychology labs, and that they were growing faster. Krohn's dismissal of English laboratory psychology is not quite correct. It completely ignores Galton's lab at the South Kensington Museum between 1884 and 1891. Although Galton had christened his workspace "Anthropometrical" rather than "Psychological," there was a great deal of overlap in kinds of the measures taken. One of the most notable aspects of Krohn's report is the emphasis on the expense of laboratory equipment. The descriptions of the labs at Clark (Hall), Columbia (Cattell), Cornell (Titchener), Harvard (Münsterberg), and Pennsylvania (Fullerton) all go on at some length with respect to the putative status of their facilities and collections. The sections often read more like advertisements to prospective students than as the dry prose of a typical government report.

11. E. B. Titchener (1898) wrote an article on his lab at Cornell for Mind, the oldest of the psychological journals, and the only British one. Titchener, an Englishman who had studied under Wundt, did not found the Cornell lab -- this had been the act of another of Wundt's student, Frank Angell, in 1891 -- but Titchener took it over the following year, moving it to another building and expanding it greatly. By 1896 he had published his own textbook Outlines of Psychology, as well as having translated the works of a number prominent Germans. The 1898 article contains a groundplan of the enlarged Cornell lab, along with a detailed description of the facilities it contained and the kind of course Titchener taught there. Somewhat surprisingly to today's reader is the amount of attention paid to supplying the lab with gas, water, and electricity. Perhaps most interesting of all, however, is a passage near the end of the article in which Titchener seems to say that the "glory days" of experimental psychology were, in some sense, already behind it:

It is probable that the graduate attendance at the American laboratories is now at its lowest ebb. A few years ago, when several important laboratories were in course of founding, and instructors were in great demand, the attraction of the new study was, naturally, very considerable. To-day, the places are filled; there is little likelihood of more establishments on a large scale; and the increased number of laboratories means an increased severity of competition. (p. 329)

12. Cattell's (1898) reply to Titchener appears to criticize him for undue extravagance in equipping his lab. It is hard to tell whether this criticism is to be taken seriously, or is primarily intended to keep potential founders of new labs from being put off by the expense that Titchener claims is required. Whereas Titchener appears to be wistful for the days of psychology's initial growth, Cattell expresses some fatigue with teaching younger students. He says, "I am glad that Professor Titchener advocates laboratory work as an elective course for undergraduates. Still I am not quite so enthusiastic about this as I used to be" (p. 656).

13. Also included in this Special Collectiton is Cattell's retrospective Science article, "Early psychological laboratories" (1928). Here, more than 30 years after the establishment of the first cluster
of American labs, one can see the important origin myths begin to take shape -- the quasi-historical stories that members of a discipline tell themselves and teach to their students in order to instill a sense of pride in their chosen field of study. For physicists the most important origin myths are Galileo standing up for "Truth" against the power of the Church, and Newton discovering gravity after being hit on the head by an apple. For chemists, one of the most important founding moments is Lavoisier's rejection phlogiston in favor of oxygen. For biologists an important story is that of T. H. Huxley's Oxford debate with Bishop Wilberforce about evolution in 1860. Here we see Cattell openly attempt to embed the opening of the scientific laboratories -- psychology's among them -- with a major socio-economic revolution. They were part and parcel of the industrial revolution, he says. He first connects the chemistry labs of the early 19th century with the coming of the mines and factories at about the same time, and then quickly forges links from the chemistry labs to those of biology and medicine, and finally to the psychology labs. He then gives an impossibly brief, somewhat disjointed history of scientific psychology, focusing on "Great Men": Weber, Fechner, Lotze, Helmholtz, Wundt, Galton, and so on. The connections are loose, but the overall effect is to give the impression that (1) psychological science had been an unqualified success, and (2) that this success was tied to its emulation of the methods and institutions of the other natural sciences. The central individual of the piece is Wundt, who Cattell lionizes as "the ideal German professor, with boundless learning shading toward the pedantic, fully conscious of his plenary inspiration, yet withal most modest, shy and kindly; a seer before his students, a child at home, a truly great man" (p. 546). Cattell then closes with brief accounts of the founding of several American laboratories. Here, if one reads between the lines, one can just detect Cattell's rivalry with G. S. Hall. In the end, however, Cattell laments that "in [Hall's] death," just four years earlier, "there ends the romantic and heroic era of our science" (p. 546).

14. It is interesting to note that there is not a whiff, in Cattell's piece, of the ongoing controversy over whether a science of psychology was even possible -- not only among the general public, but also among many leading scientists and philosophers of the era. Nor is there any mention of the sometimes-nasty shift from the sort of experimental psychology practiced in the 19th-century to the behaviorism of J. B. Watson that had occurred over the preceding 15 years. In short, what we have here is primarily an inspirational piece; a glorification of experimental psychology and its leading figures, crafted to convince potential students of the discipline that the venture on which they were about to embark is an heroic one, founded on worthy principles and by noble individuals. This is not to say that there is nothing of the truth in it -- to be inspirational it must provide a plausible account of events -- but it is selected truth, simplified truth, embellished truth. Much the same attitude, in greatly expanded form, can also be found in E.G. Boring's classic text, A History of Experimental Psychology, first published the following year, in 1929.

15. The founding of laboratories and courses was only, of course, one aspect of the professionalization and institutionalization of psychology at the end of the 19th century. Other important aspects were the establishment of scholarly journals and associations. Those, however, are the topics of the second and third Sections of this Special Collection.

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References


http://psy.ed.asu.edu/~classics/Special/Institutions/labsintro.htm

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