



The Psychotechnics of Everyday Life: Hugo Münsterberg and the Politics of Applied Psychology, 1887-1917

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The Psychotechnics of Everyday Life:
Hugo Münsterberg and the Politics of Applied Psychology, 1887-1917

A dissertation presented by

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to

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The Psychotechnics of Everyday Life: Hugo Münsterberg and the Politics of Applied Psychology, 1887-1917

Abstract

This dissertation examines the relationship between experimental psychology and everyday life through the prism of Hugo Münsterberg and the Harvard Psychological Laboratory during the Progressive Era. Catalyzed by calls from the burgeoning educational community in the 1890s, academic psychologists were increasingly drawn into diverse cultural and political debates bearing on diverse facets of social reform and modernization. Educators, for example, courted psychologists to improve pedagogical techniques. Advertisers sought insight into the consumer mind. Electric utility companies even hired psychological consultants in studying street lighting conditions. At the same time, there was also pushback to such psychological interventions. Many lawyers, for example, opposed psychologists' incursions into the courtroom. Labor advocates protested psychotechnics as the handmaiden of industry. And vocational counselors favored common sense guidance to impersonal psychological tests. By tracing these debates over the place of psychological expertise in an array of contested sites, this dissertation argues that Münsterberg's psychotechnical movement represented a radical new view of the psychologist as an expert in modernization responsible for identifying, measuring and controlling the "human factor" mediating all human activity.

My account begins in "The Laboratory" with the development of psychology as an experimental science. Next, I explore the boundaries of the laboratory in relation to the "The Classroom, the Courtroom, and the Clinic," three critical sites around which applied psychology developed. "The Market," chapter three, turns to the intersection of psychology and commercial life as well as the dynamic relationship between Münsterberg, his students and his personal contacts that supplied both materials and problems for applied research. "The Vocation Bureau & Employment Office" examines the duality of applied psychology as employed for both career guidance and applicant screening. "The Cinema" builds on the previous chapter by looking at Münsterberg's adaptations of aptitude tests for the silver screen. Finally, in "The Street" I conclude by detailing the work undertaken by Münsterberg's student Harold E. Burt whose experimental street lighting study on Intervale Avenue in the Bronx illuminates the unresolved tension between the normative ethos of psychological science and the practical task of the psychotechnician.

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market, street and so on. One needs only to look at my table of contents to appreciate the lasting effect of this exchange. Other academic colleagues and friends deserving of special mention include Stephen Casper, Chris Phillips, Lukas Rieppel, Lee Vinsel, Jenna Tonn, He Bian, Steph Dick, Henry Cowles and James Bergman among many others.

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Although many archives were visited I am especially obliged to the staff of the Rare Books and Manuscripts Department at the Boston Public Library where the bulk of Münsterberg's papers are held. Curator of Manuscripts Kimberly Reynolds and Librarian Sean Casey among others received nearly a thousand call slips by my hand over a four-year period for which I owe them as many in thanks. The staff at the Harvard University Archives, Houghton Library, and the Archives of the History of American Psychology at the University of Akron I owe not only for their kindness but for the untold treasures they care for.

I have saved my most intimate acknowledgement for last: my parents. Both deserve honorary doctorates for patiently listening to countless hours of their son's academic ramblings. My mother in particular was a constant source of support and inspiration.

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INTRODUCTION

OMNISCIENT MUENSTERBERG

I used to think it might be well,
To keep my feet from getting wet,
To seek some place in which to dwell
Where I might have no cause to fret;
I fancied that if I could hear
Less noise it might be good for me;
But Hugo Muensterberg I fear,
Will not be willing to agree.

I once supposed that exercise,
If taken in the open air,
Would serve to make my muscles rise
And keep my disposition fair;
But Muensterberg allows its wrong
To think we need to move about
In order to be well and strong
And keep our lives from blinking out.

From infants food to stellar rays,
From ladybugs to aeroplanes,
From life in prehistoric days

To lighting rods and weather vanes,
From Roman law to warts and moles,
From night to day, from black to white,
And from our toenails to our souls
Trust Muensterberg to set us right.

I seldom find some magazine
In which he has no solemn screed
That leaves me somewhat less serene
Then ere I took it up to read;
There's nothing in the universe
On which he has not gravely touched,
And always he appears to curse
What we have long and fondly clutched.

I scarcely dare to breathe or wink,
Because if Muensterberg could know,
He might in his great wisdom think
Such practices were vain and low;
I live in constant fear that he
Whose wisdom seems to reach so far
Some morning may decide that we
Have no right to be what we are.

Hugo Münsterberg was not omniscient. He was, however, an omnipresent figure in contemporary American life. Like an ostentatious Zelig, Münsterberg by 1910 could be found pushing his "psychological wares" in the popular press and in public addresses on issues as disparate as the prohibition movement, criminal forensics, educational reform and the Woman Question, to psychotherapy, Christian Science, vocational guidance and spiritualism.¹ In subsequent years his seemingly boundless interests would only broaden, finding expression in countless publications, lectures and committee work bearing on

¹ "Since Elmer Gates subsided into philosophic calm at Chevy Chase... it is the clarion voice of Münsterberg which has been most heard crying his psychological wares in the market place." Lightner Witmer, "Mental Healing and the Emmanuel Movement," *Psychological Clinic* 2, no. 8 (1909): 241.

psychology in relation to medicine, modern dance, labor legislation, industrial efficiency, advertising, salesmanship, street lighting, cinema and international politics. Judged by the scale of his ambition, size of the audience he commanded, and sheer rhetorical force with which he asserted himself in public life, Münsterberg's visibility was unrivaled in experimental psychology, pure or applied, during the Progressive Era. Indeed even a cursory review of contemporary newspapers would reveal that no psychologist received more critical attention, both in praise and condemnation, than the eminent Director of the Harvard Psychological Laboratory from 1892 until 1916.²



Figure 0.1: *Boston Daily Globe* (December 13, 1913): 8.

² Paul M. Dennis, "Press Coverage of the New Psychology by the New York Times During the Progressive Era," *History of Psychology* 14, no. 2 (2011): 113-136; Paul M. Dennis, "Psychology's Public Image in 'Topic of the Times': Commentary from the Editorial Page of the New York Times Between 1904 and 1947," *Journal of the History of the Behavioral Science* 38, no. 4 (2002): 371-392.

Only with this background in mind can we begin to understand the satirical yet earnest stakes behind "Omniscient Muensterberg," the anonymously penned poem first published in the *Chicago Record-Herald* on August 26, 1909.³ Composed in five stanzas of rhyming couplets, the poem depicts a world upended by the scientific authority of the Harvard professor and his iconoclastic brand of psychological expertise.⁴ "There's nothing in the universe / On which he has not gravely touched / And always he appears to curse / What we have long and fondly clutched" our poet laments. Münsterberg, no doubt, aimed to undermine tradition, superstition and lay common sense with wisdom born of the psychological laboratory.⁵ Time and again he would haunt his readers and lecture audiences, both in Germany and the United States, with his mandarin erudition and esoteric psychological insights into practical life.⁶ For example, Münsterberg would dismiss the American preoccupation with "nervous energy," that elusive ailment of urban-industrial life, as merely an "illusion" of the masses.⁷ Addressing the administration of justice, he would castigate judges for ignoring in their courtrooms "the fact that with the same accuracy their common-sense can be transformed [by psychologists] into careful

³ Anonymous, "Omniscient Muensterberg," *Chicago Record-Herald*, August 26, 1909; Reprinted in "The Boston Globe, September 9, 1909: 10.

⁴ *The Boston Daily Globe*, "'Psychotherapy.' Prof. Hugo Munsterberg is an Iconoclast. His Book Will Undoubtedly Arose Much Discussion," May 15, 1909: 11.

⁵ For a general discussion of the tension between science and popular culture in the American context see: John C. Burnham, *How Superstition Won and Science Lost: Popularizing Science and Health in the United States* (New Brunswick, NJ: Rutgers University Press, 1987).

⁶ On the characteristic attributes of German mandarins, see: Fritz K. Ringer, *The Decline of the German Mandarins: The German Academic Community, 1890-1933* (Hanover: University Press of New England, 1969). As early as 1889, in his first year as a *Privatdozent* at the University of Freiburg, Münsterberg would scold those believers in psychical research as falling prey to "Dilettantismus, Betrug und Umwissenheit" [dilettantism, fraud and ignorance]. Hugo Münsterberg, "Gedankenübertragung," *Berichte der naturforschenden Gesellschaft zu Freiburg/Brsg.* (Akademische Verlagsbehandlung von J. C. Mohr) 4 (1889): 148-170.

⁷ Hugo Münsterberg, "Nerves," *Journal of Education* 70, no. 19 (November 1909): 509-511. This article originally appeared in the August 1909 issue of *Metropolitan Magazine*.

measurements the results of which may widely differ from haphazard opinion."⁸ And critiquing the pastoral psychotherapy movement, he would insist that no priest be trusted to mend minds "any more than we should trust the surgeon to use his knife without condescending to the study of anatomy."⁹ If, as Münsterberg so often insisted, "common sense" was "merely the trivialized edition of the scientific results of the day before yesterday,"¹⁰ then the ascent of the so-called 'new psychology' in the early twentieth century demanded not only adjusting popular conceptions of memory, attention, imagination and perception to the latest discoveries of the psychological laboratory, but deference to psychological expertise.



Figure 0.2: *The Boston Journal*, (September 12, 1907): 5.

⁸ Hugo Münsterberg, *On the Witness Stand* (New York: Double Day, Page & Co., 1908): 66.

⁹ Hugo Münsterberg, *Psychotherapy* (New York: Moffat, Yard and Company, 1909): 179. This issue was a particularly sensitive one as both Christian Science and the Emmanuel Movement were headquartered in Boston. The Emmanuel Church in Boston had founded a psychotherapeutic clinic in 1906.

¹⁰ Hugo Münsterberg, "Psychology and Art," *The Atlantic Monthly* 82, no. 493 (November 1898): 632-644. For another variation of this expression in Münsterberg's oeuvre see: *The Eternal Values* (Boston: Houghton Mifflin Company, 1909): ix.

Despite satirizing his hubris and intellectual overreach, the concluding couplet nevertheless makes clear that the threat posed by psychology, as personified by Münsterberg, was unlike that of any other science or scientist. Whereas physics and chemistry led to transformative technologies and new ontologies, and biology and physiology radically altered our understanding of life, its structures, evolution and manipulation, experimental psychology boldly claimed access to that black box of individual identity and subjectifying medium of human experience: the mind.¹¹ Therefore building to its dramatic conclusion the poet bewails, "I live in constant fear that he / Whose wisdom seems to reach so far / Some morning may decide that we / Have no right to be what we are."¹²

PSYCHOLOGY: SCIENCE OR TECHNOLOGY?¹³

At first glance, this elegy to agency and intellectual autonomy epitomizes the argument of Nikolas Rose in *Inventing Our Selves: Psychology, Power, and Personhood*. Building on the observations of Michel Foucault, Rose contends that the turn-of-the-twentieth century transformation of mind into the privileged object of science not only unleashed a new form of disciplinary power co-opted in everyday governance, but reshaped the very meaning and experience of "personhood."¹⁴ In order to make visible (and open to

¹¹ There were, to be sure, traditions of psychological thought reaching back to the Ancients and Enlightenment philosophers up nineteenth century phrenology and physiognomy.

¹² Such a sentiment eerily resonates with the work of Nikolas Rose (1996; 1989) via his appropriation of Foucault's analysis of disciplinary power and subjectification. See: Michel Foucault, *Discipline & Punish: The Birth of the Prison* (New York: Vintage Books, 1977): 192-194.

¹³ E. B. Titchener, "Psychology: Science or Technology?," *The Popular Science Monthly*, January 1914: 39-51.

¹⁴ Nikolas Rose, *Inventing Our Selves: Psychology, Power, and Personhood* (Cambridge: Cambridge University Press, 1998). See also: Nikolas Rose, *Governing the Soul: The Shaping of the Private Self* (New York: Free Association Books, 1989).

criticism) the mechanisms of this new regime of self, Rose proposes we rethink psychology as simultaneously an "intellectual" and "practical technology."¹⁵ By intellectual technology Rose refers to the privileged status of psychological experts and their authority as the chief arbiters of all matters mind, behavior and personality. By practical technology, on the other hand, we have the instrumentalization of such expertise in the form of tests (e.g. intelligence, aptitude and Rorschach) and examinations (e.g. clinical, vocational and educational) as well as corrective, therapeutic, and managerial techniques and practices (e.g. psychotherapy, incarceration and scientific management). Institutional spaces such as the factory, classroom, courtroom and clinic (and their corresponding personnel) therefore become sites for *forming* and *reforming* 'selves' in line with the normative ethos they support.¹⁶

Taking a less Foucaultian tack, historian of science Hamilton Cravens nevertheless moves parallel to Rose insofar as he calls attention to the application of psychology as a "social technology." Indeed, for Cravens, all social sciences ought more accurately to be called "social technologies" in so far as they share a "heavily applied orientation" and "for the most part...have been invented and developed in response to social and public policy concerns."¹⁷ Viewed through this lens mental testing becomes a

¹⁵ Nikolas Rose, *Inventing Our Selves: Psychology, Power, and Personhood* (Cambridge: Cambridge University Press, 1998): 12-13.

¹⁶ Roger Smith's description of the "psychological society" echoes Rose's analysis of the new regime of self. Roger Smith, *The Norton History of the Human Sciences* (New York: W. W. Norton & Co., 1997): 575-580. Although more polemic than academic, Rose's *Inventing Our Selves* and *Governing the Soul* shares much in common (although never cited) with Martin L. Gross, *The Psychological Society: A Critical Analysis of Psychiatry, Psychotherapy, Psychoanalysis and the Psychological Revolution* (New York: Random House, 1978). On institutions as a "technology" of disciplinary power, see Deleuze's reading of Foucault: Gilles Deleuze, *Foucault* (Minneapolis: The University of Minnesota Press, 1988): 23-47.

¹⁷ Hamilton Cravens, "History of the Social Sciences," *Osiris* 1 (1985): 187-207. Dorothy Ross, *The Origins of American Social Science* (New York: Cambridge University Press, 1991); Loren Baritz, *The*

social technology *par excellence* that received its greatest impetus from WWI when 1.7 million Army recruits were assessed by intelligence tests (known as the Alpha and Beta tests) under the leadership of Harvard psychologist Robert M. Yerkes.¹⁸ Historian of science John Carson, in his essay on the Army testing program, argues that by translating the psychological concept of intelligence into mass-producible and easy-to-administer "technologies" such as standardized 'paper and pencil tests' and rating cards, the disciplinary power of psychology quickly emerged as omnipresent and inescapable not only for Army recruits during the war but for subsequent generations of civilians young and old.¹⁹ Meanwhile, other scholars have pointed to the military mobilization of psychologists during the first and second world wars to locate the transformation of psychology into a "technoscientific profession," whereby psychological knowledge and techniques were reconfigured as practical tools for solving any and all problems involving the mind.²⁰

Although WWI and intelligence tests dominate the historiography of applied psychology, Deborah Coon has located the so-called technological impulse in modern

Servants of Power: A History of the Use of Social Science in American Industry (Middletown, CT: Wesleyan University Press, 1960).

¹⁸ For all the importance placed in WWI in the history of applied psychology, only Kevles has given serious consideration to Münsterberg's influence on Yerkes over the almost two decades they worked together in the Harvard Psychological Laboratory. Daniel J. Kevles, "Testing the Army's Intelligence: Psychologists and the Military in World War I," *The Journal of American History* 55, no. 3 (1968): 565-581. On Walter Dill Scott's contrasting approach to testing Army recruits during WWI, see: Richard T. Von Mayrhauser, "Making Intelligence Functional: Walter Dill Scott and Applied Psychological Testing in World War I," *Journal of the History of the Behavioral Sciences* 25, no. 1 (1989): 60-72.

¹⁹ John Carson, "Army Alpha, Army Brass, and the Search for Army Intelligence," *Isis* 84, no. 2 (June 1993): 278-309. Carson in this essay brings together Foucault's concept of "technologies of self" with Latour's "immutable mobiles." For a parallel analysis see: Nikolas Rose, "Calculable Minds and Manageable Individuals," *History of the Human Sciences* 1, no. 2 (October 1988): 179-200.

²⁰ James H. Capshaw, *Psychologists on the March: Science, Practice, and Professional Identity in America, 1929-1969* (Cambridge: Cambridge University Press, 1999): 3, 9.

psychology at a much earlier juncture. In her important essay, "Standardizing the Subject," Coon argues that "technological—or technoscientific—ideals shaped the discipline of psychology in the United States from the 1880s onward."²¹ Coon, in essence, suggests that a kind of technological *modus operandi* underpins a genealogy connecting experimental psychology to industrial psychology and Behaviorism, both of which explicitly aim to wield psychology as a social technology.²² While this so-called "technological ideal" proves useful as a heuristic for explaining the methodology of the new psychology, as a form of historical causality it leaves a lot to be desired.²³

Whether appropriating Michel Foucault's technologies of self, Jacques Ellul's *technique*, or Latour's technoscience, technology and techno-jargon in the historiography of psychology have primarily functioned as a theoretical framing device.²⁴ However, what has been lost in the accumulation of such accounts is an incredibly rich technological

²¹ Deborah Coon, "Standardizing the Subject: Experimental Psychologists, Introspection, and the Quest for a Technoscientific Ideal," *Technology and Culture* 34, no. 4 (October 1993): 757-783. Bridging the arguments of Rose and Coon is Van Hoorn's, "Psychology and the Reign of Technology," W. van Hoorn, "Psychology and the Reign of Technology," Vol. 1, in *Studies in the History of Psychology and the Social Sciences*, ed. S. Bem, H. Rappard and W. Van Hoorn, 105-118 (Leiden: Psychologisch Instituut, 1983). Also on the "technological ideal" in psychology see: Lawrence D. Smith, "On Prediction and Control: B. F. Skinner and the Technological Ideal of Science," in *Evolving Perspectives on the History of Psychology*, ed. Wade E. Pickren and Donald A. Dewsbury, 255-272 (Washington, D.C.: American Psychological Association, 2002).

²² On the relationship between psychology and industrialization see: David Bakan, "Behaviorism and American Urbanization," *Journal of the Behavioral Sciences*, January 1966: 5-28; W. van Hoorn, "Socioeconomic Factors and the Roots of American Psychology: 1865-1914," *Annals New York Academy of Sciences*, 1977: 203-221.

²³ One might compare Coon's account of the origins of Behaviorism to that of John M. O'Donnell: *The Origins of Behaviorism: American Psychology, 1870-1920* (New York: New York University Press, 1985).

²⁴ JoAnne Brown, *The Definition of a Profession: The Authority of Metaphor in the History of Intelligence Testing, 1890-1930* (Princeton: Princeton University Press, 1992); Kerry W. Buckley, *Mechanical Man: John Broadus Watson and the Beginnings of Behaviorism* (New York: The Guilford Press, 1989); John C. Burnham, *Accident Prone: A History of Technology, Psychology and Misfits of the Machine Age* (Chicago: Chicago University Press, 2009); Steven C. Ward, *Modernizing the Mind: Psychological Knowledge and the Remaking of Society* (Westport, CT: Praeger, 2002); W. Van Hoorn, "Psychology and the Reign of Technology," Vol. 1, in *Studies in the History of Psychology and the Social Sciences*, ed. S. Bem, H. Rappard and W. Van Hoorn, 105-118 (Leiden: Psychologisch Instituut van de Rijksuniversiteit Leiden, 1983).

discourse that was indigenous to the historical actors under discussion. Evidence of such neglect is the almost complete omission of psychotechnics (or psycho-technology as it was sometimes called) from the Anglo-American historiography.²⁵ Although often conflated with applied or industrial psychology, this dissertation claims that while not autonomous from these fields, a careful examination of psychotechnics by way of Münsterberg in the period before WWI offers a new perspective both on the history of psychology and technology, as well as the Progressive Era and transatlantic intellectual dialogue.²⁶

THE POLITICAL GEOGRAPHY OF APPLIED PSYCHOLOGY: HUGO MÜNSTERBERG AND THE EXPERTS IN MODERNIZATION

Hugo Münsterberg, like most German academics in the late nineteenth century, was ambivalent about placing university resources in the service of applied science and technology. This should come as no surprise. In Germany the ideal of 'pure learning' ran deep in the educational system. Following the Napoleonic wars Prussian universities adopted the Humboldtian pedagogical concept of *Bildung*, that is, cultivation through education. *Bildung* referred to the cultivation of mind and spirit through classical learning as opposed to practical or vocational education. This process of being initiated into the

²⁵ Andreas Killen may be the one exception, however, his work has focused on psychotechnics in Weimar Germany. Andreas Killen, "Weimar Psychotechnics between Americanism and Fascism," *Osiris* 22, no. 1 (2007): 48-71; *Berlin Electropolis: Shock, Nerves, and German Modernity* (Berkeley: University of California Press, 2006). By contrast, a few examples from German historiography include: Horst Gundlach, ed., *Untersuchungen zur Geschichte der Psychologie und der Psychotechnik*, ed. Horst Gundlach (Munich: Profil Verlag, 1996); Friederich Dorsch, *Geschichte und Probleme der angewandten Psychologie* (Bern: Verlag Hans Huber, 1963).

²⁶ On the importance of this transatlantic intellectual dialogue I am indebted to the following works: James Kloppenberg, *Uncertain Victory: Social Democracy and Progressivism in European and American Thought, 1870-1920* (New York: Oxford University Press, 1986); Daniel T. Rogers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge, MA: Harvard University Press, 1998); Phyllis Keller, *States of Belonging: German-American Intellectuals and the First World War* (Cambridge, MA: Harvard University Press, 1979); Charles S. Maier, *In Search of Stability* (New York: Cambridge University Press, 1987).

Bildungsbürgertum, the German educated elite began in the *Gymnasium*. There they would spend nine years studying Latin and Greek, German grammar and an array of scientific and humanistic subjects in the hopes of passing their *Abitur* exam, their cultural badge of honor and passport into the universities. For those who chose to study science, the 'pure learning' ideal of the *Bildungsbürgertum* was translated into the prejudicial preference for *reine Wissenschaft* [pure science] as opposed to *angewandte Wissenschaft* [applied science]. This cultural hierarchy was further emboldened by the condescending attitude of the German academics towards technical schools thus in effect institutionalizing a kind of intellectual segregation of pure science from applied science and engineering.²⁷ Those defenders of the traditional academic order and elite cultural status of the university professor were famously designated the "German mandarins" by intellectual historian Fritz Ringer.²⁸

It was within this cultural milieu that Münsterberg received his education at the gymnasium in Danzig (1880s) and at the universities of Leipzig (1882-1885) and Heidelberg (1885-1887). Therefore in order to understand how this background informed Münsterberg's own intellectual prejudices and preferences it is here that this dissertation begins. However, my purpose in providing this background is not strictly biographical. My aim is rather to illustrate through Münsterberg's example how intersecting cultural and scientific ideologies informed to a great extent the ideology of modern science in both Germany and the United States especially as the modern American university was largely based on the German model.

²⁷ Kees Gispén, *New Profession, Old Order: Engineers and German Society, 1815-1914* (New York: Cambridge University Press, 1989).

²⁸ Fritz K. Ringer, *The Decline of the German Mandarins: The German Academic Community, 1890-1933* (Hanover: University Press of New England, 1969).

In chapter one I examine how this cultural context informed the first psychological laboratories beginning with Wundt's laboratory in Leipzig where Münsterberg was trained, followed by Freiburg where he adapted this model in establishing his own laboratory in 1887. In 1892 Münsterberg would then transpose this research model to Harvard at the urging of William James.

Chapter two, then turns to the break down of this pure science model under the overwhelming pressures of the Progressive Era. Here I have identified three critical sites that would increasingly engage the attention of psychologists: the classroom, the courtroom and the clinic.

After completing his initial applied psychology trilogy—*On the Witness Stand*, *Psychotherapy*, and *Psychology and the Teacher*—and founding within his laboratory a new department of applied psychology, Münsterberg began to envision an array of new arenas ripe for psychotechnical intervention. This new direction was surveyed in a popular essay entitled "Psychology and the Market." In chapter three I examine this new marketplace for psychological expertise, namely, the market itself. In particular this chapter looks at an experimental investigation into the psychology of trademarks initially developed by Münsterberg but subsequently assigned in 1911 to his student Gustave A. Feingold as a dissertation project. Two key issues emerge in from this case study that have received little attention in the historiography of applied psychology. First, I illustrate how contrary to his reputation as a mere popularizer Münsterberg used his popular articles in order to stir up interest in applied psychology amongst professionals such as lawyers, educators, advertising agents and so on. In return, Münsterberg received a constant stream of queries regarding the possibility of psychology to solve certain problems from their respective lines of work. By positioning himself as the passive recipient of practical

requests, Münsterberg was then able to claim that the problems he selected were those chosen purely for their scientific interest. This was critical in order to fend off accusations of commercialism or compromised objectivity.

Next, in chapter four, I turn to the novel institution of the Vocation Bureau founded in Boston in 1908. Under the leadership of Frank Parsons, its founder, the vocational guidance movement initially showed great interest in what psychological experts might offer in the way of techniques for identifying vocational aptitudes in their clients. However, Münsterberg's initial optimism in cooperating with this movement would soon be tempered first by skepticism about the methods vocational counselors employed and later by the opposition he encountered from the new leadership after Parsons' death not six months into the Vocation Bureau's existence. Instead he would turn his energy to vocational selection in connection with the work of employment managers. Here we find the adaptation of the same testing techniques Münsterberg had developed for vocational guidance, but now applied towards the ends of business.

In chapter six we have the site most closely associated with Münsterberg, The Cinema. Although much of the recent scholarship on Münsterberg has focused on his book *The Photoplay: A Psychological Study*, which he published in 1916, this chapter situates his engagement with film in the context of the changing cultural status of cinema as well as Münsterberg's active involvement in film production. His series of psychological tests for the screen entitled "Testing the Mind," featured in Paramount's magazine on the screen the Pictographs, featured adaptations of psychological tests described in chapter four. These interactive screen tests, which aimed to educate audiences on the value of psychological tests in vocational guidance, in essence transformed the cinema into the vocation bureau from which Münsterberg had been banished.

Lastly, in chapter six we examine the unexpected challenges faced by Harold E. Burt, Münsterberg's student whom he had hired by the Street Lighting Committee of the National Electric Light Association. Under Münsterberg remote supervision, Burt spent the summer of 1914 working alongside the illuminating engineers of the Street Lighting Committee testing experimental street lighting conditions on their test street in the Bronx. Frustrated by the difficult conditions of carrying out an experimental investigation in the field, Burt would eventually retreat to the Harvard Psychological Laboratory to continue his street lighting study free from the everyday obstacles of psychological work *in situ*.

HUGO MÜNSTERBERG BETWEEN HISTORY AND HISTORIOGRAPHY

Despite such remarkable productivity, prominence in Progressive Era-politics and scientific clout as Director of the Harvard Psychological Laboratory (1892-1916), in 1977 his biographer Matthew Hale would contend that Münsterberg's name, "fell almost immediately into obscurity," "the bulk of his work forgotten" and his legacy ignored by historians of the Progressive Era.²⁹ For Hale, this fall from preeminence to obsolescence stemmed from a hastily written oeuvre "bearing the marks of a...foreigner's command of English" and a muckraking literary style easily dismissed as lacking in rigor.³⁰ While this assessment certainly echoes turn-of-the-twentieth century critiques—many of which were motivated by personal politics and professional competition³¹—normative arguments of

²⁹ Matthew Hale Jr., "Psychology and Social Order: An Intellectual Biography of Hugo Münsterberg, Ph. D. Dissertation, University of Maryland (1977): 6-7; Matthew Hale Jr., *Human Science and Social Order: Hugo Münsterberg and the Origins of Applied Psychology* (Philadelphia: Temple University Press, 1980): 6.

³⁰ *Ibid.*, 6.

³¹ E. B. Titchener, "Dr. Münsterberg and Experimental Psychology," *Mind* 16, no. 64 (October 1891): 521-534; F. C. Schiller, "Review: Psychology and Life by Hugo Münsterberg," *Mind* 8, no. 32 (1899): 540-543.

this kind have their historical limitations.³² Nevertheless, Hale was not alone in holding this view. That same year, for example, intellectual historian Bruce Kuklick would concur that "Münsterberg's popular writings were as ephemeral as his theoretical work and much that was worthwhile was forgotten in both."³³

The Münsterberg-lost-and-found narrative was not limited to professional historians. In the October 1977 issue of *American Psychologist*, Merle J. Moskowitz would offer his own account of the "almost forgotten figure in American psychology."³⁴ However, contrasted with Hale and Kuklick, Moskowitz made no apologies for his heroic portrayal, suggesting that "more than any other psychologist of his time, Hugo Münsterberg exemplified the sudden expansion of psychology from the classroom to many facets of economic and social life."³⁵ As with all things Münsterberg, controversy soon followed when a series of heated response pieces appeared in the *American Psychologist* ranging from outrage to adulation.³⁶

If Münsterberg had been abruptly "forgotten" after WWI, then by 1977 the historical memory was jogged with more publications on his life and work in the decade that followed than had appeared in the previous half-century. Moreover, much like

³² Münsterberg, indeed, was notoriously prolific. However, unlike in public criticism, private correspondence reveals that his colleagues were as often in awe of this quality than contemptuous. For example, in a letter to William James, Josiah Royce would jest that although Münsterberg claimed he was fatigued entering summer, "no doubt he will write another book before October..." Josiah Royce to William James, 21 June 1901, William James Papers, bMS Am 1092.9 (529-560), Houghton Library, Harvard University. Moreover, based on my own humble judgment, Münsterberg was among the most engaging and original psychological writers of his day. To use the words of William James, by 1901 Münsterberg's English was "*absolutely* idiomatic."

³³ Bruce Kuklick, *The Rise of American Philosophy, Cambridge, Massachusetts, 1860-1930* (New Haven: Yale University Press, 1977).

³⁴ Merle J. Moskowitz, "Hugo Münsterberg: A Study in the History of Applied Psychology," *American Psychologist* 32, no. 10 (October 1977): 824-842.

³⁵ *Ibid.*, 841.

³⁶ David P. Kuna, "One-Sided Portrayal of Münsterberg," *American Psychologist* 33, no. 7 (July 1978): 700; H. B. Roback, "More on Münsterberg," *American Psychologist* 33, no. 7 (July 1977): 700-701.

during his lifetime, interpretations of his work often revealed more about the ideology of the interpreter than the content and context of his work. But setting this issue aside for the moment, particularly striking is the trans-disciplinary *and* transnational nature of this phenomenon,³⁷ which begs the question: What gave rise to this historiographic resurrection? Why the seemingly simultaneous rediscovery amongst academicians from disparate fields?³⁸

One important factor was the so-called 1970s "renaissance" in the science of testimony.³⁹ Alison Winter, for example, has illustrated how forensic psychologists like Elizabeth Loftus appropriated and improved upon experimental designs first described in English by Münsterberg in *On the Witness Stand* (1908).⁴⁰ Parallel to Winter's work, legal scholar James Doyle has described how Brooklyn College psychologist Robert Buckhout "picked up Munsterberg's fallen banner in the 1970s" by invoking "a modernized version of the same approach."⁴¹ Regardless of how exactly Loftus and Buckhout first

³⁷ A few noteworthy examples include: Phyllis Keller, *States of Belonging: German-American Intellectuals and the First World War* (Cambridge, MA: Harvard University Press, 1979): 7-18; Mark R. Wicclair, "Film Theory and Hugo Münsterberg's 'The Photoplay: A Psychological Study'," *Journal of Aesthetic Education* 12, no. 3 (July 1978): 33-50; Wrege D. Charles, Ronald G. Greenwood, Jacqueline Mundy and William F. Muhs, "Hugo Munsterberg's Pioneering Studies of Managerial Decision-Making," *Academy of Management Proceedings*, August 1982: 107-111; Elizabeth F. Loftus, "Eyewitness Testimony: Psychological Research and Legal Thought," *Crime and Justice* 3 (1981): 185-151; Friederich Kittler, *Grammophon, Film, Typewriter* (Berlin: Berkmann & Bose, 1986).

³⁸ Here I have in mind John C. Burnham and his application of Merton on simultaneous in his book *Accident Prone: A History of Technology, Psychology and Misfits of the Machine Age* (Chicago: Chicago University Press, 2009). For a useful comparison one might consider the case of Gregor Mendel, the so-called founder of modern genetics who we are told was "rediscovered" around 1900.

³⁹ Siegfried Ludwig Sporer, "The Science of Eyewitness Testimony Has Come of Age," *Psychological Science* 7, no. 2 (November 2006). The stage had been set in 1968 when the American Psychology-Law Association was formed against the backdrop of the social and political upheaval of the 1960s.

⁴⁰ Alison Winter, "A Forensics of the Mind," *Isis* 98, no. 2 (June 2007): 332-343; *Memory: Fragments of a Modern history* (Chicago: The University of Chicago Press, 2012); Elizabeth Loftus, *Eyewitness Testimony* (Cambridge, MA: Harvard University Press, 1979): 20-22, 201-203.

⁴¹ James M. Doyle, "Ready for the Psychologists: Learning from Eyewitness Error," *Court Review: The Journal of American Judges Association* 48 (2012): 4-12; *True Witness: Cops, Courts, Science, and the Battle Against Misidentification* (New York: Palgrave Macmillan, 2005).

encountered Münsterberg, it was certainly convenient that *On the Witness Stand* began repopulating shelves after it was reissued in 1976 as part the AMS Press Foundations of Criminal Justice Series.⁴² Another possible source for "rediscovery" was the textbook *Legal Psychology* (1931; 1940) by Ohio State University Professor of Psychology Harold E. Burt. "The writer's interest in legal psychology" Burt's preface began "dates back to academic contacts with Hugo Münsterberg and his pioneer work in psychotechnics."⁴³ As discussed in chapter five, Burt had been both student and laboratory assistant to Münsterberg and one of the few after WWI to candidly discuss his great intellectual debt to the once towering figure.⁴⁴

Following the same pattern but with a different book, film studies scholars in the 1970s would christen *The Photoplay: A Psychological Study* (1916) "not only the first but also the most direct major film theory."⁴⁵ What matters here is not the veracity but the rhetoric. Anointing someone "first" or "founder," compiling a canon, writing a disciplinary history, are all implicated in the boundary-work of fields, disciplines and professions, especially in their early stages of development. Therefore it is not surprising that two fields undergoing rapid development in the 1960s and 1970s—both psychology and law and film studies established national societies, new journals and academic

⁴² One might also take note of the fact that as a visiting scholar at Harvard during the 1975-76 academic year Loftus participated in the Seminar on Law and Psychology. Not to overstate the role of institutional memory, but it is difficult to imagine Münsterberg's name not entering the discussion.

⁴³ Harold E. Burt, *Legal Psychology* (New York: Prentice-Hall, 1940): vii.

⁴⁴ "Oral History of Psychology -- Dr. Harold Burt," 12 August 1974, T. S. Krawiec Collection of Oral Histories, OH1, Box 1, Fold 10 Harold Burt, Archive of the History of American Psychology, University of Akron, Ohio. Burt in fact was present when Münsterberg expired while lecturing at Radcliffe on December 16, 1916.

⁴⁵ Dudley Andrew, *The Major Film Theories* (London: Oxford University Press, 1976). Even Mark Wicclair's critical appraisal of *The Photoplay* would leave unquestioned its status as "undoubtedly a remarkable beginning in the field of film theory." Mark R. Wicclair, "Film Theory and Hugo Münsterberg's 'The Photoplay: A Psychological Study'," *Journal of Aesthetic Education* 12, no. 3 (July 1978): 33-50.

programs in this period—would be receptive to find their respective "firsts."⁴⁶ As with *On the Witness Stand*, the republication of *The Photoplay* in 1970 made possible critical engagement formerly unthinkable with such a rare book. By 1974 when Gerald Mast, Leo Braudy and Marshall Cohen were completing what would become *the* authoritative film theory anthology, Münsterberg was primed to become film theory's earliest exemplar.⁴⁷ Since *Film Theory and Criticism* was first published Münsterberg has become a staple of the film studies curriculum, articles and monographs.⁴⁸ Ironically, most psychologists outside industrial and forensic psychology still know nothing of the man hand-picked by William James to run the Harvard Psychological Laboratory.

The subtle irony in this parallel but isolated rediscovery of *On the Witness Stand* and *The Photoplay* is they offer a unique insight into the nexus between film and forensics. For example, one of Münsterberg's sources was the German psychologist William Stern who in 1903 described his method for conducting testimony experiments by showing subjects (i.e. "witnesses") a film then collecting and comparing their testimonies. In this method, he would write, "... der Kinematograph, der ja in seinem Film sämtliche Phasen dargeboten Vorganges fixiert enthält, und daher eine Kontrolle jedes Aussageelementes

⁴⁶ Lee Grieveson, "Cinema Studies and the Conduct of Conduct," in *Inventing Film Studies*, ed. Lee Grieveson and Haidee Wasson, 3-37 (Durham: Duke University Press, 2008).

⁴⁷ *Film Theory and Criticism*, ed. Gerald Mast, Leo Braudy and Marshall Cohen (Oxford: Oxford University Press, 1974; 1979; 1985, 1992, 1999, et al.).

⁴⁸ Donald Laurence Fredericksen, "The Aesthetics of Isolation in Film Theory: Hugo Münsterberg," Ph. D. Dissertation, University of Iowa (1973); Jörg Schweinitz, "Psychotechnik, idealistische Ästhetik und der Film als mental strukturierter Wahrnehmungsraum: Die Filmtheorie von Hugo Münsterberg," in *Hugo Münsterberg, Das Lichtspiel: Eine psychologische Studie (1916) und andere Schriften zum Kino*, 9-26 (Vienna: Synema, 1996); Allan Langdale, "S(t)imulation of Mind: The Film Theory of Hugo Münsterberg," in *Hugo Münsterberg on Film. The Photoplay: A Psychological Study and Other Writings*, ed. Allan Langdale, 1-41 (New York: Routledge, 2002); Robert M. Brain, "Self-Projection: Hugo Münsterberg on Empathy and Oscillation in Cinema Spectatorship," *Science in Context* 25, no. 3 (2012): 329-353; Giuliana Bruno, "Film, Aesthetics, Science: Hugo Münsterberg's Laboratory of Moving Images," *Grey Room*, no. Summer (2009): 88-113.

erlaubt."⁴⁹ Not only had Stern been an important source for his own testimony experiments, but it was also from Stern that he would later adopt the term psychotechnics.

More recently the Director of the School Psychology Program at the University of Memphis has credited Münsterberg with introducing the term “school psychologist.”⁵⁰ In the world of I/O (Industrial and Organization Psychology) he is called founder of their field and his book *Psychology and Industrial Efficiency* (1913) its first textbook. As in 1909 when the poem "Omniscient Muensterberg" appeared, it seems that once again he has established, surreptitiously, a kind of omnipresence.⁵¹

This dissertation, in part, takes as its starting point several fundamental confusions that have arisen from this unusual historiographic situation. The first is the largely uncontested narrative that Münsterberg was somehow forgotten or neglected then suddenly rediscovered. While on empirical grounds there is no denying that after 1970 there was a veritable Münsterberg renaissance, the more productive historical question would be to ask why the period of silence then reclaimed relevance? The most compelling explanation has been the tide of anti-German sentiment after the outbreak of WWI that fueled distrust amongst his colleagues and greatly tarnished public reputation by the time of his death. As Münsterberg would write to the aforementioned William Stern shortly before his death, "all of my old relations are severed, especially here in Boston. Most of my friends here no longer recognize me; I have been thrown out of clubs and put out of

⁴⁹ William Stern, "Aussagestudium," *Beiträge zur Psychologie der Aussage* 1, no. 1 (1903): 46-78.

⁵⁰ Thomas K. Fagan, "Literary Origins of the Term School Psychologist' Revisited," *School Psychology Review* 34, no. 3 (2005): 432-434.

⁵¹ Although space will not permit a detailed discussion here, digitization (via Google, Internet Archive, Haithi Trust, et al.) has certainly reshaped the historical perception in complex ways that demand serious attention by researchers.

academies. All their rage has concentrated upon me." A more discerning survey of statements by his many prominent former students and colleagues, however, reveals that many still held Münsterberg in high regard (e.g. Robert Yerkes, Harold Burt, Mary Whiton Calkins, Ethel Puffer, Knight Dunlap, Gertrude Stein, Alain Locke, William Moulton Marston, among others).

A careful examination of the work of any one of the above-mentioned names will contradict the claim that Münsterberg's fell into obscurity, or that his influence was merely that of a popularizer of applied psychology. However, the subdued acknowledgment was very real and most likely a product of what might be called the Americanization of psychology stimulated by the First World War that paralleled the rise of behaviorism so often implicated in minimizing the historical influence of German psychologists (other than Wundt). Indeed this desire to distance psychology from Münsterberg's wartime legacy was firmly in evidence in reviews of his daughter's biography published in 1922.⁵²

By contrast, Münsterberg was much discussed in Germany (as well as Russia) throughout the 1920s as his book *Grundzüge der Psychotechnik* became the source for the mushrooming psychotechnics movement in Weimar Germany. However the perceived failure of psychotechnics by late 1927-28 eventually led to diminishing interest.

Although Münsterberg has since 1977 received fairly consistent, although perhaps not sustained scholarly attention, a consequence of his many "rediscoveries" has been an

⁵² I have gleaned invaluable insight into Münsterberg's post-war reputation based on correspondence between E. B. Titchener and Frank Angell in their correspondence on the subject of his daughter's biography. Curiously, many of Titchener's view contradict a more conciliatory tone towards Münsterberg ironically at the height of his interest in applied psychology. From the Titchener Papers see: E. B. Titchener to F. Angell, 22 November 1922, Box 4. Edward Bradford Titchener Papers, 1887-1940, #14-23-545. Division of Rare and Manuscript Collections, Cornell University Libraries.

unnatural atomizing of his work in terms of his contribution to specific fields and professions largely divorced of context. This proliferation of specialized accounts however, has created significant confusion as all seem to rely on the same several sources. More importantly, I argue that Münsterberg was in fact never really forgotten, nor has his influence been seriously assessed. Moreover, in all these varied accounts Münsterberg's influence is assessed purely in relation to certain published works. This dissertation, however, argues something very different. I argue that indeed Münsterberg's influence was in fact greatest as an organizer of a vast experimental program and by mobilizing his students to engage in the world beyond the laboratory he inaugurated a new kind of consulting psychologist directly shaping everyday life.

THE LABORATORY

It is well known throughout the world that the physical laboratories of Germany have no windows looking towards the patent office. The hunting for practical inventions is not usually important for theoretical science, but the progress of theory usually has practical applications.¹

In 1872, shortly after German unification, Hugo Münsterberg entered his first year of gymnasium in the Prussian city of Danzig. Like all gymnasium students Münsterberg studied Latin, Greek and a little French, math, physics, natural history, geography, philosophy, religion and history, as well as singing, drawing and calligraphy for good measure.² In his free time he took up cello, dabbled in creative writing, staged plays with friends and gathered specimens for his pressed plant collection. Mechanical instruments, however, soon supplanted botany, when he received for his twelfth birthday the gift of "some dainty little electrical machines" from his uncle. As he fondly recalled,

I was thus, at twelve years, on the best road to discover the patent-hunter in my personality, when a friend with ministerial inclinations interfered: we began to study comparative religion, Islamism in particular. Thus, at fifteen years of age we learned Arabic from the grammar, and read the Koran. Now, finally, my true nature was found; my friend wrote prophetically in my album that we should both go out as missionaries to the Arabs, — and yet I missed the connection, and went to Boston instead of Mecca...³

¹ Hugo Münsterberg, "The X-Rays," *Science* 3, no. 57 (January 1896): 161-163.

² Fritz Ringer, *Education and Society in Modern Europe* (Bloomington: Indiana University Press, 1979): 34.

³ In the context of his article "School Reform," Münsterberg was making a point about the vagaries of youthful interests as evidence against the educational reforms in favor of the elective system. Hugo Münsterberg, "School Reform," *The Atlantic Monthly* 85, no. 511 (May 1900): 656-669.

Although this anecdote related by Münsterberg in an essay on educational reform served a specific rhetorical purpose—namely to demonstrate how the vagaries of youthful curiosity would go unchecked in an elective educational system—it nevertheless reveals an important facet both of his *Bildungsbürgertum* background and self-fashioning as a 'man of science.'⁴ This becomes clear when compared against a statement he made several years earlier in an article on the discovery of the x-ray by the German physicist Wilhelm Röntgen.⁵ As opposed to emphasizing the obvious applications for the new technology, Münsterberg instead placed Röntgen's rays in the victory column for pure science.⁶ Röntgen's laboratory, he reminded *Science* readers, adhered to that well-known cliché that "the physical laboratories of Germany have no windows looking towards the patent office." "The hunting for practical inventions is not usually important for theoretical science," he would continue, "but the progress of theory usually has practical applications."⁷ In much the same way that he condescended to the "hunting for practical inventions," so too did he dismiss that "patent-hunter in his personality" as a phase of childhood immaturity. The connection between Mecca and Boston is also instructive. Like a religious pilgrimage, Münsterberg viewed his journey in 1892 from Freiburg to

⁴ Werner Conze and Jürgen Kocka, "Einleitung," in *Bildungsbürgertum im 19. Jahrhundert*, ed. Werner Conze and Jürgen Kocka, 25 (Stuttgart, 1985): 25.

⁵ Münsterberg wrote this piece as a favor to his favorite James McKeen Cattell with whom he had studied alongside in Wundt's laboratory in the mid-1880s. Cattell was the editor of *Science* and Münsterberg happened to be in Germany at the time deciding whether or not to return to Harvard permanently. This article was in fact one of the first reports on the discovery in the American press. Michael M. Sokal, "'Science' and James McKeen Cattell, 1894 to 1945," *Science* 209, no. 4452 (July 1980): 43-52.

⁶ Thomas Edison similarly remarked, perhaps following Münsterberg's lead, "Whether Röntgen's discovery has a commercial value or not is something which has not yet been determined. He is a pure scientist, and cares nothing about that aspect of the question. He needs men like myself, whose chief aim is to turn the great discoveries of science to practical use and adapt them, so that the world will receive the benefit of them." *The New York Times*, "No New Light Found. Mr. Edison Gives Precedence to Prof. Roentgen," February 1896, 1896.

⁷ Hugo Münsterberg, "The X-Rays," *Science* 3, no. 57 (January 1896): 161-163.

Harvard as an act of self-sacrifice in the name of science and German *Kultur*.⁸ Moreover, like the practice of religion, the ideology of pure science called for ascetic devotion to truth for truth's sake.



Figure 1.1: Hugo Münsterberg, "Twenty-Five Years in America," *The Century* 94, no. 1 (May 1917): 34-48.

From the 'Mecca of the New Psychology'⁹ in Leipzig where Münsterberg spent his formative student years, to the University of Freiburg where he founded his first

⁸ Hugo Münsterberg, "Twenty-five Years in America," *The Century* 94, no. 1 (May 1917): 34-48.

psychological laboratory in 1887, this chapter will examine the Wundtian model of experimental psychology as it was interpreted by Münsterberg and transposed to Harvard in 1892. Beginning with Münsterberg's educational background and introduction to psychology in Leipzig, I will first describe the scientific ethos and experimental norms established by Wilhelm Wundt and largely adopted by Münsterberg with a few important alterations. In examining Münsterberg's laboratory and experimental regime I will pay particularly close attention to the close connection that formed between Freiburg and Harvard by way of William James and the students he and Münsterberg shared as early as 1890. This points to a much earlier and more specifically practice-centered explanation behind James' decision to bring Münsterberg to Harvard than has hitherto been recognized in the existing historiography.

LEIPZIG: WILHELM WUNDT AND THE NEW PSYCHOLOGY

As Münsterberg prepared for his final year of gymnasium in 1881, his father, Mortiz, left Danzig for Lisbon to attend an Anthropological Congress with his friend Rudolf Virchow. Although a lumber merchant by trade, Moritz had been an active member of Danzig's *Naturforschenden Gesellschaft* for many years. Seemingly in perfect health upon departure, Moritz would fall to an "acute illness" shortly after his return.¹⁰ As

⁹ References to Wundt's Leipzig laboratory as the Mecca of the New Psychology and the journey there as the psychologist's pilgrimage abound in the historiography of psychology. A few examples include: George Sidney Brett, *A History of Psychology*, Vol. III (London: George Allen & Unwin Ltd., 1921): 261; John B. Watson, "Munsterberg's Place in American Psychology," *The New Republic* 32, no. 405 (September 1922): 51; A. A. Roback, *A History of American Psychology* (New York: Library Publishers, 1952); Michail Jaroschewski, *Psychologie im 20. Jahrhundert: theoretische Entwicklungsprobleme der psychologischen Wissenschaft* (Berlin: Volk und Wissen, 1975).

¹⁰ Margaret Münsterberg, *Hugo Münsterberg: His Life and Work* (New York: D. Appleton and Company, 1922): 16-17; "Jahresbericht der Naturforschenden Gesellschaft zu Danzig für 1880," *Schriften der Naturforschenden Gesellschaft in Danzig*, 1881: 1.

Münsterberg's mother had passed away when he was twelve, the loss of his father before his nineteenth birthday was a devastating blow. He was, however, in the good hands of his three loyal brothers. The eldest, Otto, took over their father's business importing Russian lumber and managed their inheritance, which ensured Münsterberg would be able to pursue his academic ambitions unencumbered by financial restraints.

Prior to leaving Danzig for the university, Münsterberg would convert from Judaism to Protestantism. This was, to be sure, not an uncommon practice for middle class Jews hoping to navigate the barriers of prejudice and ascend the academic ranks. Moreover, anti-Semitic student associations were on the rise and becoming increasingly hostile in the universities during the 1880s.¹¹ This came on the heels of the founding of the Christian Social Party in 1878. Catholics faced a similar fate during the *Kulturkampf* period that followed unification.¹²

After passing his *Abitur* exam Münsterberg would spend the summer of 1882 studying French literature in Geneva. From there he would travel to Leipzig to begin his first semester of coursework in medicine and philosophy.¹³ It was during his third semester at the University of Leipzig that he first encountered Wilhelm Wundt, that towering figure of the New Psychology, in his lecture course "Logic and Scientific Methodology." Although not conventionally charismatic, Wundt's lectures were known to

¹¹ Christopher Clark, *Iron Kingdom: The Rise and Downfall of Prussia, 1600-1947* (Cambridge, MA: The Belknap Press of Harvard University Press, 2006): 585; Münsterberg also discussed this trend in a speech published in 1890: Hugo Münsterberg, "Studentpflicht und Studentrecht. Ein Wort an die deutsche Studentschaft," (Guillermo Levien, Verlagsbuchhandlung): 14.

¹² Ironically, it was Moritz Münsterberg's friend Rudolf Virchow who had coined the term *Kulturkampf* for Bismarck's anti-catholic reforms.

¹³ In addition to Wundt, he studied chemistry with Karl Ludwig, zoology with Rudolf Leukart, anatomy with Wilhelm His and physics with Wilhelm Hankel.

attract up to six hundred at a time.¹⁴ Regardless, from that point forward Münsterberg would aspire to follow in his teacher's footsteps by establishing himself in the young but promising field of psychology.¹⁵ During his subsequent three semesters in Wundt's laboratory he would forge a lifelong friendship with James McKeen Cattell who would go on to become, alongside William James, one of the leaders of American psychology. Moreover, it was Cattell, the pioneer of the "mental test," whom Münsterberg would later dedicate his foundational text on psychotechnics, the *Grundzüge der Psychotechnik*.

Wundt's rise to the forefront of psychology had begun in 1875 when he became a professor of philosophy at the University of Leipzig. However, in his first year his only laboratory space would be a small "private institute" which he used for demonstrations and basic psychophysical experiments. Because psychology was not a recognized laboratory science, Wundt initially financed this endeavor himself. However, in 1883, after he was recognized as an authority in the new physiological psychology, Wundt finally achieved for his science the official recognition he had been looking for when his "Psychophysical Studies for Advanced Students" course became officially listed in the university catalog and he received a small stipend from the state. That year, in fact, was *the* year that Münsterberg began working with Wundt and undoubtedly the excitement surrounding psychology that Wundt had inspired contributed to his interest in the subject.

¹⁴ Martin Kusch, *Psychological Knowledge: A Social History and Philosophy* (London: Routledge, 1999): 70.

¹⁵ Ben-David and Collins have suggested that pursuing a career in psychology by way of philosophy presented greater opportunities than were available in physiology, which experienced its greatest increase in faculty chairs between 1850-70. This argument has serious historical imitations historically but it nevertheless presents interesting data on the growth of psychology within philosophy compared to physiology. Joseph Ben-David and Randall Collins, "Social Factors in the Origins of a New Science," *American Sociological Review* 31, no. 4 (August 1996): 451-465.

Among the many things that Münsterberg absorbed from Wundt during the time he spent working in his laboratory was the importance of participating in psychology as both an experimenter and as subject. This was crucial in Wundt's model as the ideal experiment required interchangeability of both roles. As Martin Kusch and Kurt Danziger and others have shown, introspection, while tying psychology to philosophy was at the same time that which distinguished it from physiology and physics.¹⁶ However, unlike traditional philosophical introspection, which took place in the cloistered study of the philosopher, for the psychologist this observational technique was said to become objective when carried out by the trained psychologist in the context of a controlled laboratory experiment. Describing Wundt's laboratory in 1887, James McKeen Cattell would explain that "experiment is not meant to take the place of introspection, but is meant to make scientific introspection possible." Moreover, invoking the rhetoric of mechanical objectivity he continued, "Experiment calls up the phenomena to be studied when wanted and, by keeping certain conditions constant and by altering others, gives the best chance for analysis; above all it enable us to *photograph* the transient phenomena and subject them to objective examination and measurement."¹⁷ Here it is possible to see the growth of experimental psychology within philosophy as running parallel to the growing prestige of the natural sciences in the mid-nineteenth century, which increasingly drew

¹⁶ Kurt Danziger, "The History of Introspection Reconsidered," *The Journal of the History of the Behavioral Sciences* 16 (1980): 241-262; Martin Kusch, "Recluse, Interlocutor, Interrogatory: Natural and Social Order in Turn-of-the-Century Psychological Research Schools," *Isis* 86, no. 3 (September 1995): 419-439.

¹⁷ James McKeen Cattell, "The Psychological Laboratory at Leipsic," *Mind* 13, no. 49 (January 1888): 37-51; Christopher Green, "Scientific Objectivity and E. B. Titchener's Experimental Psychology," *Isis* 101, no. 4 (December 2010): 697-721.

into question all forms of knowledge not rooted in empirical observation or direct experiment.¹⁸

One practical consequence of this system was that it set strict limits on what counted as a legitimate psychological experiment. In Wundt's laboratory introspection required intellectual autonomy, training and 'normal' mental competence. Only with this criteria met would experimental data, collected by introspective as well as instrumental means, be deemed credible. Therefore experiments with subjects under hypnosis, children, psychiatric patients and animals all failed to pass muster. This too would be an important policy in Münsterberg's own laboratories. As he would write in 1895, "All those psychological experiments, in which self-observation is displaced by methods of indirect observation, as experiments with hypnotized persons, or with the insane, or with babies, or with animals, are excluded from our regular laboratory work, and are, in any case, only accessory part of experiments in psychology."¹⁹

FREIBURG: THE LIVING ROOM LABORATORY ON GÜNTERSTALSTRASSE

After taking his doctorate in Leipzig in 1885 and completing his medical degree in Heidelberg two years later, Münsterberg would apply on May 26, 1887 to the University of Freiburg for a position as *Privatdozent* in Philosophy. In Münsterberg's curriculum vitae he would offer the following autobiographical statement to explain both his philosophical credentials and scientific background for experimental work.

Mein Studien verfolgten von Anfang an eine allgemeine philosophische Richtung, wandte sich aber, unter Leitung von Professor Wundt in Leipzig, mit besonderem

¹⁸ Find Everett Mendelsohn reference on mid-nineteenth century reductionism in Germany.

¹⁹ Hugo Münsterberg, "The New Psychology," *Journal of Education* 41, no. 20 (May 1895): 332-333.

Interesse den Problemen der Psychologie zu. Überzeugt von der Notwendigkeit, daß die philosophische Forschung heute engen Zusammenhang mit den Naturwissenschaften anstreben, speziell die Psychologie stete Föhlung mit den Naturwissenschaften behalten muß, habe ich von vornherein meine Studien systematisch möglichst weit auszudehnen mich bemüht. In diesem Sinne habe ich neben den philosophischen Beschäftigungen einerseits culturgegeschichtliche, volkswirtschaftliche, linguistische, theologische und juristische Kollegien besucht, anderseits den wissenschaftlichen Entwicklungsgang des Mediciners, mit besonderer Berücksichtigung allgemein biologischer Disziplinen durchgemacht. Zur Vorbereitung für die praktischen Arbeiten der experimentellen Psychologie, habe ich, hauptsächlich in Leipzig, in die physikalischen, zoologischen, chemischen und anatomischen Laboratorien, ferner im dortigen Institut für Psychophysik teil Übungscurse absolviert, teils mich an wissenschaftlichen Untersuchungen beteiligt.²⁰

Although Münsterberg was quite explicit in stating his focus being primarily in psychology, this was more than amenable to the philosopher Alois Riehl. Riehl himself was deeply interested in the emergent scientific psychology and had even lectured on the subject as early as 1885, albeit without laboratory demonstrations.²¹ With Riehl's blessing Münsterberg was offered the lectureship and that summer he married his fiancé Selma Oppler with whom he relocated to Freiburg in the fall.

Not two months into marriage it may have come as some surprise for Selma Münsterberg to find her eccentric husband transforming two rooms in their apartment into a full-fledged psychological laboratory. At the same time, such practices were not unprecedented. Indeed Wundt himself had carried out early experiments in his mother's

²⁰ Hugo Münsterberg, "Curriculum Vitae," 26 May 1887, B 254/1: Psychologisches Institut, Universitätsarchiv der Universität Freiburg/Breisgau. [Unless otherwise noted all quotations hereto forward reflect the spelling found in the original text. Note, for example, the common use of "c" in place of "k," e.g. Übungscurse, Culturgegeschichte and Mediciner.]

²¹ Riehl, "Einleitung in die Psychologie," Sommersemester 1885; "Experimentelle Psychologie," Sommersemester 1886; *Vorlesungsverzeichnisse der Universität Freiburg/Albert-Ludwigs-Universität Freiburg*.

kitchen in Heidelberg.²² When Wundt joined the Leipzig faculty in 1875, he received a small space to store equipment and offer demonstrations, but received no formal support for a laboratory. It was not until 1882 that Ministry would offer him a proper budget and not until June 6, 1883 that he would be able to announce the establishment of an Institute for Experimental Psychology.

Therefore it was following the model of institutionalization established by Wundt that Münsterberg would built up his own privately financed laboratory using the money from his inheritance. Moreover, like Wundt, soon after he established his laboratory he would petition the university for financial support. As German universities were officially managed by the State, this in fact meant sending a petition directly to the government. However, as only full professors were recognized as civil servants with access to government, Münsterberg would make his case to Alois Riehl to take the matter to the University Senat for official backing. In a letter to Riehl Münsterberg explained that he had spent already by 1889 over 3000 Marks (approximately \$720) for the initial equipment. Münsterberg, to be sure, spared no expense in commissioning custom appartus built by local precision mechanic Hermann Elbs.²³ In addition to these initial expenses he would spend approximately 300 Marks annually for upkeep, repairs and new apparatus. Although he made his case to Riehl on financial grounds for an annual stipend of 2-3000 Marks to defray costs, based on the above figures it seems fairly unlikely that money was his primary motivation. To receive any stipend at all from the State in a sense

²² Solomon Diamond, "Wundt Before Leipzig," in *Wilhelm Wundt in History: The Making of a Scientific Psychology*, ed. Robert W. Wieber and David K. Robinson (New York: Kluwer Academic/Plenum Publishers, 2001): 28.

²³ My conversion from Marks to Dollars is based on Münsterberg's ledger for the Psychological Laboratory. "Psychological Laboratory Fund, 1890-1892," Harvard University Archives.

was the quickest route to formal recognition and therefore a status that would bring new prestige to his "house of experiment." Riehl, to be sure, was well aware of this strategy.

Among the most revered features of Münsterberg's laboratory were his instruments. Of particular note was an apparatus he had designed and executed by Elbs, which he called the *Augenmassapparat*. This instrument was essentially a large black screen with two moveable white strips that were used to test the estimation of spatial relations. Other items in his collection were soon to become those well known classics of the "brass instrument psychology" of the late nineteenth century, namely the tachistoscope, chronograph... and the kymograph. However, early on such devices were often described in more terrestrial term, for example, the tachistoscope was in fact often little more than a clever use for a camera shutter that controlled the exposure of visual stimuli. The fluidity of such terms is clearly in evidence in a letter from Charles A. Strong to William James regarding an experiment he had participated in while studying with Münsterberg in Freiburg:

The experiments we began last Saturday are on the quantitative aspect of Association, & suggested by some carried on in Wundt's laboratory last winter by a Mr. Scripture. The subject sits behind a screen, and received two perceptions simultaneously, an auditive one in the form of a spoken word, & a visual one administered by means of a camera. He then announces what first enters his head. Dr. M. thinks the results will throw light on the mechanism of Association, & help to settle the status of the *berüchtigte Apperceptionstheorie*.²⁴

²⁴ Charles A. Strong to William James, 13 May 1890, *The Correspondence of William James, Volume 7, 1890-1894* (Charlottesville: University Press of Virginia, 1999), 24-30.

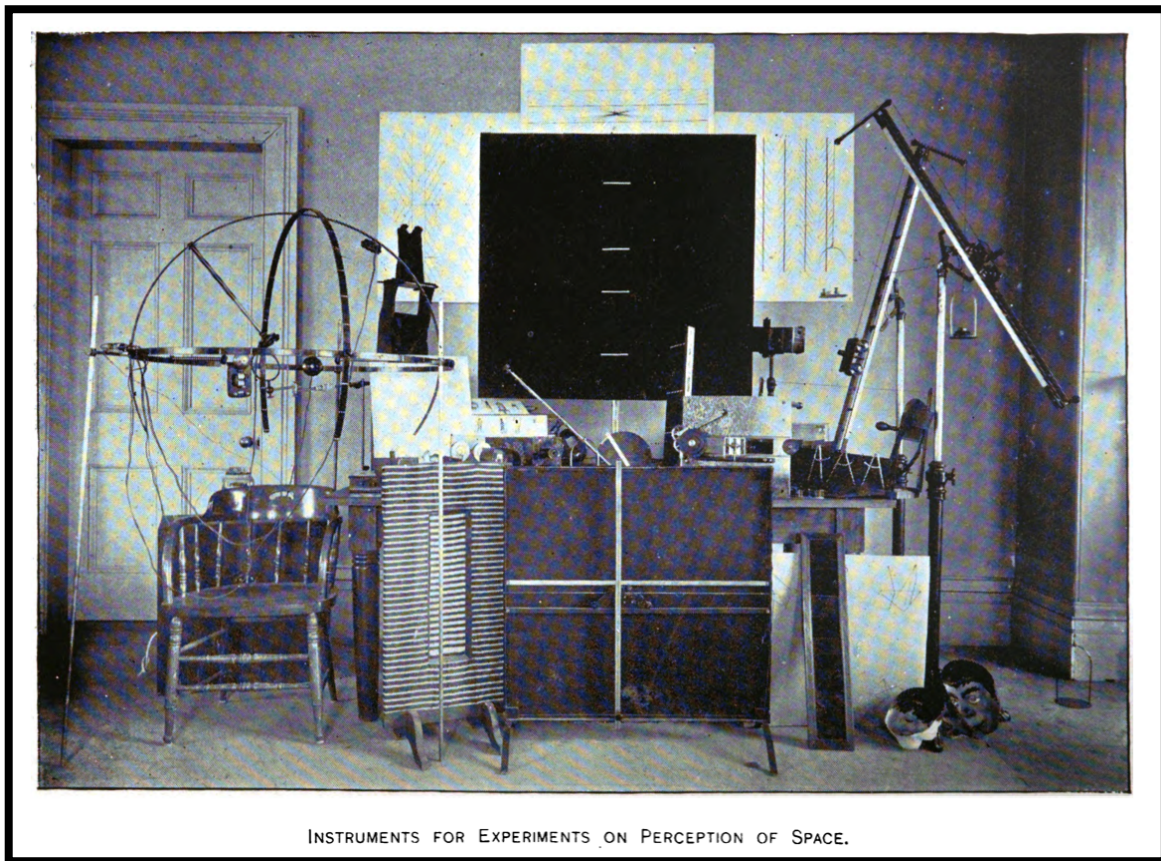


Figure 1.2: The *Augenmassappart* is the instrument is the black screen located in the center of the image. *Psychological Laboratory of Harvard University*, Cambridge, Mass: Harvard University, 1893.

Based on the first year of experimental work in his laboratory, which by 1890 had moved into his new apartment on Lessingstrasse, Münsterberg had amassed enough material by to publish his own laboratory organ entitled *Beiträge zur experimentelle Psychologie*. Again, this followed the model of institutionalization established by Wundt who, like Münsterberg, had the same year as gaining official recognition published the *Philosophische Studien* as the organ of his laboratory.

The *Beiträge* however was important not only as place of publication for his and his students' research, it also provided Münsterberg with a space to explicate his own methods and theory of psychology. For example, it was here that he introduced his *Aktionstheorie* as a central feature of his larger experimental enterprise. The *Beiträge* was also

important because it enabled him to establish himself and his laboratory as a leading rival to Wundt's based on fundamental differences in their thinking which he polemically acknowledged in the preface to the first volume.

Mannigfache Arbeiten, und nicht am wenigsten die des vorliegenden Heftes, wenden sich gegen die Ausführungen von Wundt. Das zu vermeiden ging nicht an. Wundt hat das gesamte Gebiet der experimentellen Psychologie so eingehen behandelt, dass fast jede neue Arbeit entweder seinen Untersuchungen bestimmen muss, in welchem Falle eine Publikation mehr oder weniger überflüssig sein dürfte, oder aber ihnen zu widersprechen genötigt ist. So möchte ich denn wenigstens den polemischen Ausführungen gegen Wundt die Bitte beifügen, dass man nach denselben zugleich die Bedeutung bemessen möge, die ich den psychologischen Arbeiten dieses Philosophen beilege, dem ich in der Ausbildung eigener psychologischer Ansichten am meisten verdanke. Auch im Kampfes-eifer bleibe ich dankbar mir bewusst, dass die besten Waffen, die ich gegen ihn trage, er selber mir geschmiedet hat.²⁵

As it turned out, both these points proved tremendously attractive to William James, who after briefly meeting Münsterberg in Paris in 1889 had read the *Beiträge* with great interest and admiration.

In the forward to the first volume of the *Beiträge* Münsterberg would define the boundaries [*Grenzen*] and constraints [*Beschränkungen*] of experimental psychology both in theoretical and practical terms. By boundaries he pointed to the need for the intellectual and methodological demarcation of psychology from other 'disciplines.' By constraints he referred to the more concrete rules that guided experimental practice in his laboratory. The first boundary, he explained, was with physiology.

Die experimentellen Untersuchungen sollen psychologisch, nicht physiologisch sein. So wertvoll etwa Versuche am Tiergehirn für Ausgestaltung der physiologischen Psychologie sind, so zweckmässig erscheint es mir, eine saubere

²⁵ Hugo Münsterberg, *Beiträge zur Experimentellen Psychologie* (Freiburg: Akademische Verlagsbuchhandlung von J. C. B. Mohr, 1889).

Trennung zwischen solchen Experimenten festzuhalten, bei denen die Bewusstseinserscheinungen direkt zugänglich sind, und solchen, bei denen sie mit oft gewagten Hypothesen aus tierischen Äußerungen erst erschlossen werden. In der Regel soll von Versuchen ersterer Art unser Unternehmen berichten.²⁶

As discussed earlier in relation to Wundt, the important distinction here was between direct and indirect observation. Whereas direct observation required experimental symmetry where the subject's introspection was equally important to the objective inscriptions produced by apparatus, indirect observation was akin to the scientific-clinical gaze where observation was unidirectional. In other words, unless the cadaver on the dissection table or the lab mouse in the maze could report their thoughts and feelings to the psychologist, these techniques were considered strictly indirect forms of observation.

The next boundary Münsterberg discussed was that between psychology and metaphysics, the branch of philosophy that had the most overlap with the claimed territory of psychology. As with physiology he would leave no question as to their relation.

Die Studien wollen psychologisch, nicht metaphysisch sein. Die Einleitung bemüht sich, den principiellen Problemen gerecht zu werden und darzulegen, in welchem Sinne die einzelnen Arbeiten zur Klärung erkenntnistheoretischer Grundfragen beizutragen vermögen. Die einzelne Untersuchung wird es dagegen vermeiden, immer wieder auf die letzten Fragen zurückzugehen; sie wird sich darauf beschränken, den Punkt zu zeigen, wo die spezielle Erörterung in eine allgemeinere Betrachtung einmündet.²⁷

Unlike the metaphysician, who always returned to the same fundamental questions, the psychologist focused on experimental study of isolated mental faculties and senses with only causal explanation in mind. Although Münsterberg did not by any

²⁶ Ibid., vii.

²⁷ Ibid., viii.

means discredit metaphysics and philosophy, he maintained that psychology ought to focus strictly on the causal *description* of mental life. In this way psychology was said to proceed through the accumulation of 'matters of fact,' as opposed to the cyclical process of philosophical or metaphysical speculation.

As already mentioned one of the rules within Münsterberg's laboratory was that its members participate as both experimenter and subject. Both roles were considered essential to the student's psychological training. In later years when Robert Yerkes would run the animal psychology wing of the Harvard Psychological Laboratory, Münsterberg would still insist that students of animal psychology participate as subjects in normal psychological experiments.

Women, notably, were embraced with unusual equality in Münsterberg's laboratory as far back as 1890. The first of his woman students was Resa von Schirnhoffer, a friend of Friedrich Nietzsche who had taken her doctorate in Zurich in 1889 for a thesis comparing Schelling and Spinoza. From the earliest incarnation of his laboratory in Freiburg to its last home at Harvard in Emerson Hall, women were regular members of Münsterberg's laboratory. In fact, it was often the case that he regarded women as his best students. For example, he would famously call Gertrude Stein his "model of ideal student," and recognized Ethel Puffer, who studied in both his Freiburg and Harvard laboratories, as among the most accomplished and most capable members of his laboratory. In fact, Puffer had the unique honor of being surreptitiously appointed as an assistant in the Harvard Psychological Laboratory, and arrangement was cleverly concealed from the public, and possibly the administration, by calling her an assistant to the non-existent Radcliffe Psychological Laboratory. Mary Whiton Calkins, who would

become the first female president of the American Psychological Association, was another notable student of both Münsterberg and William James.

THE FREIBURG-HARVARD CONNECTION

Beginning around 1890 an important relationship was forged between the respective laboratories of Hugo Münsterberg and William James. The catalyst for this bond was in part Charles Augustus Strong. In 1889 Strong had travelled to the University of Berlin to pursue further study in philosophy and psychology. However, Strong was conflicted over where to invest his time and energy. "Perhaps you will remember that when I wrote you last," he would write in a letter to his former teacher William James, that "my mind was severely exercised over the practical question, whether I had better while abroad pay special attention to physiological & experimental psychology, or stick to my old trade of abstract philosophy." Fortunately, he told James, his mind was alas made up; he had decided "to postpone philosophy indefinitely...and go in with heart & soul for experimental psychology."²⁸ This conviction he would go on to explain came after a conversation he had had with the philosopher Friedrich Paulsen.

When I called on Paulsen at the beginning of the semester, he told me there was a growing conviction in Germany (and what he said sounded like an echo of words I have read somewhere in Wundt) that the future philosopher must not be a philosopher merely, but also a scientific worker in some branch of the natural sciences... No person therefore is fit for this business...who has not been drilled in the school of positive science and served his apprenticeship there.²⁹

²⁸ C. A. Strong to William James, 5 January 1890, in *The Correspondence of William James*, Vol. 7 (Charlottesville: University Press of Virginia, 1999): 1-5.

²⁹ Ibid.

For this reason Strong had decided to spend his remaining time in Germany in Leipzig where he could work in the laboratory of the great Wilhelm Wundt himself. However, at the last minute there was a change of plans. His wife—the daughter of John D. Rockefeller—had become sick during the winter and after repeated warnings that the Leipzig climate would be detrimental to her health, they decided to settle in "the neighborhood of the Black Forest," Freiburg.³⁰ In all likelihood the recommendation to travel to Freiburg instead of Leipzig had come by way of Max Dessoir, a friend of Münsterberg's in Berlin whom Strong had first met after the two became laboratory partners in the physiological laboratory of Hermann Munk.

One month into his stay in Freiburg, Strong reported back to James with glowing reviews of Münsterberg with whom he spent two hours a week experimenting in his home on Lessingstrasse 12.

I find him interesting intellectually & personally most agreeable... He lectures & experiments all day, talks brilliantly in the evening, & then works at his desk till three or four in the morning, writing fourteen to sixteen printed pages at a sitting... he told me himself that students call him the Kuno Fischer of Freiburg... He is younger than I, it made me blue to hear it. He is a popular Docent; he gave last semester a *publicum* on Hypnotism, a catching subject to be sure, that had three hundred auditors.³¹

It was likely on Strong's unequivocally positive review that three months later James would send another student to Freiburg, Edmund Delabarre. On July 2, 1890 James would write the following letter of introduction for Delabarre to be handed to Münsterberg upon his arrival in Freiburg:

³⁰ C. A. Strong to William James, 13 May 1890, in *The Correspondence of William James*, Vol. 7 (Charlottesville: University Press of Virginia, 1999): 24-30.

³¹ Ibid.

This will be handed you by Mr. Edward Delabarre who has been studying philosophy with us for two years. He is especially interested in Psychology, has an uncommonly clear head, and independent character, and if he should fix himself in Freiburg for a time, I am persuaded that you will find him not only a most agreeable student to teach, but a most helpful collaborator in experimental work, for which he has an excellent aptitude. I wish I could have given him more training in that line. He got out a couple of very good optical things when he was with me... Any kindness which you show to Mr. Delabarre will be warmly appreciated by me. I wish we might have seen a little more of each other in Paris last summer. I need hardly say that I am immensely interested in your masterly *Beiträge*, which seem to me to promise more for Psychology than the work of any man who has yet appeared. Only you mustn't stop!³²

In the correspondence that followed between James and Münsterberg the foundation for a working relationship would be laid as they discussed Delabarre's research and progress.³³ After 1890 James would regularly suggest to his students that they continue their studies in Freiburg under Münsterberg.³⁴ Moreover, with each new volume of the *Beiträge* James received, he grew to believe he had found in Münsterberg a true genius. After receiving the third volume James would write Münsterberg "you seem to me to be doing more to open up new vistas in Psychology than anyone today."³⁵

While James was growing increasingly reliant on Münsterberg for offering his students advanced experimental training, Münsterberg for his part was growing impatient with his situation in Freiburg. "M. has been amusing himself counting up the number of psychological laboratories that are either in operation or projected in the United States," Strong would tell James in a letter,

³² William James to Hugo Münsterberg, 2 July 1890, in *The Correspondence of William James*, Vol. 7 (Charlottesville: University Press of Virginia, 1999).

³³ Hugo Münsterberg to William James, 11 August 1890, William James Papers, bMS Am 1092.9 (357-392), Houghton Library, Harvard University.

³⁴ In addition to Delabarre and Strong, James Hume Gibson and William Scott Wadsworth were two others who studied in Freiburg between 1890 and 1892. Delabarre comments on James encouraging his student to take this route in, "A Student's Impressions of James in the Late '80's," *Psychological Review* 50 (1943): 125-134.

³⁵ William James to Hugo Münsterberg, 27 August 1890, Mss. Acc. 1834 (B) 1, HM-BPL.

I think we counted 8 in all—and comparing our enterprise & enlightenment with the benighted state of things in Germany. He has several times asked what I should think of his emigrating to America, whether he could secure a good position there, etc. He is dissatisfied with the slowness with which one rises in Germany, & regrets having settled in Freiburg.³⁶

The eight laboratories that had sprung up in the United States were just the tip of the iceberg. That number would exceed forty in less than a decade. By contrast, there were less than a dozen in Germany by the turn of the century and even when they were founded it was usually with meager financial support from state governments.³⁷

In addition to James' recognition of his pedagogical prowess and insatiable academic ambition, there were a number of domestic factors that would eventually create an opportunity for Münsterberg to come to Harvard. For example, while psychological laboratories were slow to gain a foothold in the German academic system, the less tradition-bound American colleges and universities created a highly competitive environment for the development of scientific psychology; a movement in which James hoped to establish Harvard as a leader. In part, this was because after a decade of battling with the manuscript for *The Principles of Psychology*, in 1889 he had finally begun work on final revisions. *Principles* was to be James' arguably most influential contribution to experimental psychology despite the fact that very little of it was based on original experimental work.

The most direct source of competition James felt came from his former student G. Stanley Hall who in 1889 became President of Clark University in nearby Worcester,

³⁶ C. A. Strong to William James, 1 August 1890, William James Papers, bMS Am 1092.9 (3263-3305) Houghton Library, Harvard University.

³⁷ German universities were wedded to the State and therefore entirely dependent on government for institutional support. By contrast, private American universities were increasingly financed by the private sector, a fact reflected in their boards of trustees.

Massachusetts. In a heated exchange between the two men in 1890, Hall had suggested to James that they coordinate their efforts with Clark primarily responsible for experimental psychology and Harvard taking charge of the more philosophical work. James responded by redoubling his commitment to psychology by asking President Eliot to change his title from Professor of Philosophy to Psychology. He argued that Harvard was the best institution in the country and in order to lead in the fastest growing scientific field it should not only have a professor devoted to the subject, but a properly equipped laboratory presumably superior to Clark's. Although James had run a "psychological laboratory" of sorts prior to this period, it was more of a crowded room for experiments than a space specifically dedicated to the purpose.

By late summer of 1890 James had raised \$4300 and secured for his laboratory the upper floor of Dane Hall. However, as James had indicated to all but President Eliot, he had no intention of leading the life of a laboratory director. For that he hoped to lure Münsterberg.

The offer came on February 21, 1892 when Münsterberg received the following note from James: "The situation is this," he would write: "We are the best university in America, and we must lead in Psychology. I, at the age of 50, disliking laboratory work naturally, and accustomed to teach philosophy at large altho I *could, tant bien que mal*, make the laboratory run, yet am certainly not the kind of stuff to make a first-rate director thereof. We could get younger men here who would be *safe* enough, but we need something more than a safe man, we need a man of genius if possible."³⁸ To sweeten the

³⁸ William James to Hugo Münsterberg, 21 February 1892, William James Papers. MS Am 1092.9, Houghton Library, Harvard University.

deal James promised up to two laboratory assistants, less than six hours of teaching per week (outside the laboratory), and \$1600 for instruments and other laboratory expenses.

After excruciating deliberation over whether or not to leave his beloved *Vaterland* and anxious about his ability to gain fluency in English, Münsterberg finally accepted Harvard's offer for a three year trial period in May 1892. That June, while James was beginning his sabbatical year in Switzerland he would spend the better part of a week getting to know Münsterberg as well as assuaging his anxieties about the momentous move. In a letter to Josiah Royce, whom he had recruited from Berkeley to Harvard in 1882, James would offer the following impressions based on his recent time with their new laboratory director.

He is an extraordinarily engaging fellow, not of the heroic type, but of the sensitive and refined type, big, inclined to softness and fatness, poor voice, vain, loquacious, personally rather formal and fastidious I think, desiring to please and to shine, liberal of money, quick to forgive, painfully conscious of his Judaism, though baptized when a child, fond of travelling and of all kinds of experience, interested in many intellectual directions, and talking anything rather than "shop" when he gets out of harness...It is in the Lab. that he appears at his best, and that best is *very* good. His indefatigable love of experimental labor has led him to an extraordinarily wide range of experiments, he has invented a lot of elegant and simple apparatus, his students all seem delighted with him, and so far as I can make out, everyone recognizes him to be, as a *teacher*, far ahead of every one else in the field, whatever they may think of his published results. His brain never tires; he is essentially a man of big ideas in all directions, a real genius; and I feel more than ever, since I have been here, how great an addition he will be to our strength, *if only he gets along with our language*.³⁹

A GERMAN MANDARIN AMONGST BOSTON BRAHMINS

After moving into his home in Cambridge, Münsterberg would anxiously prepare a speech, his first in English, introducing himself and outlining his vision for the Harvard

³⁹ William James to Josiah Royce, 22 June 1892, William James Papers, bMS Am 1092.9 (3594-3641), Houghton Library, Harvard University.

Psychological Laboratory. This vision, however, was by no means new, as he would explain in his speech it was essentially "the same plan, which I carried out through four years in Germany." Echoing the introduction to the first volume of the *Beiträge*, Münsterberg would describe the purpose of the laboratory as exclusively for "new researches, concerning new problems, new questions or old questions with new methods." Method, or means, was above all else the main focus. As we will see at the close of chapter two this point becomes especially significant in that psychotechnics inverts this scheme. Whereas the pure psychology described by Münsterberg focuses on means for means sake, the problem of psychotechnics becomes merely the application of psychological means to a given end. In Münsterberg's speech this pure psychology emphasis would be articulated in terms of the focus on "general ideas," which he would explain, "give deeper insight into the true purpose of experimental psychology, for only these general ideas constitute the value of our science."⁴⁰

In relation to instruments, Münsterberg would explain that they simply served to augment self-observation, or introspection, but that the fashioning of apparatus was never an end in and of itself. "The questions," he insisted, "must direct the apparatus, never the contrary." In other words, Münsterberg here warned of the temptation for the scientist to become too enamored by the instrument while losing sight of the scientific question at hand. In a sense this warning was as much methodological as it was moral, in that that this temptation was a form of materialism.

Over the next three years this program would be enacted with great success. Almost unanimously his colleagues were pleased with his progress and by 1894 he was

⁴⁰ Hugo Münsterberg to William James, 9 October 1892, William James Papers, bMS Am 1092.9 (357-392), Houghton Library, Harvard University.

more than capable of both lecturing and writing in English. At the end of his three-year trial period, Münsterberg would return with his family to Freiburg to decide whether or not he would, as President Eliot requested, 'burn his ships,' that is give himself to Harvard for good. Tellingly, while Münsterberg returned to Germany, it was his student, Edmund Delabarre who had taken his Ph.D. under him in Freiburg, who was asked to run the laboratory in his absence.

On March 19, 1897, Münsterberg would write James to say "Now I am yours forever and all my ships here are burned."⁴¹

⁴¹ Hugo Münsterberg to William James, 19 March 1897, William James Papers, bMS Am 1092.9 (357-392), Houghton Library, Harvard University.

THE CLASSROOM, THE COURTROOM AND THE CLINIC

When E. B. Titchener accepted the invitation to speak at the Psychology Conference at Clark University in September 1909, he did so embracing his prescribed role as the spokesman for 'pure' experimental psychology.¹ Although Titchener seldom needed encouragement to preach the gospel of pure science, it was the Clark psychologist Edmund Sanford who had suggested he play this part at the conference. In a letter to Titchener from May 1909 Sanford would write, "You are in a sense my king-pin as regards experimental psychology pure and simple."

With [William] Stern, [Sigmund] Freud, [Adolf] Meyer, [Franz] Boas, and [Herbert] Jennings we shall be pretty heavily loaded on the side of applied psychology. You might...make a sort of a justification of pure psychological work as against these other tendencies, which are now certainly very strong – perhaps take as a text the way in which Meumann has made a good beginning at experimental pedagogy by applying what was first used only for pure psychology. This might take the form of a sketch of the actual advance in psychology – the territory won "from chaos and old reigns" within the twenty year period which Clark celebrates.²

Titchener embraced with open arms Sanford's proposal. Moreover as a staunch defender of his mentor Wilhelm Wundt,³ he most likely felt vindicated by the appearance

¹ Rand B. Evans and William A. Koelsch, "Psychoanalysis Arrives in America: The 1909 Psychology Conference at Clark University," *American Psychologist*, August 1985: 942-948.

² E. C. Sanford to E. B. Titchener, 28 May 1909, Box 2. Edward Bradford Titchener Papers, 1887-1940, #14-23-545. Division of Rare and Manuscript Collections, Cornell University Libraries.

³ Although Titchener aligned himself with Wundt their views did diverge on a number of important issues. However, among their many points of agreement was an emphasis on psychology as a pure science. On the complicated intellectual relationship between Titchener and Wundt see: Ryan D. Tweney, "Programmatic Research in Experimental Psychology: E. B.

of an essay by his former master, "On Pure and Applied Psychology," published only two weeks later. Just as Wundt had written "der allgemeine Grundsatz, daß die Wissenschaft zunächst um ihrer selbst willen da ist, und daß sie auch den Zwecken der Praxis am besten dient, wenn sie sich in erster Linie durch die Probleme rein theoretischer Erkenntniss leiten läßt, is heute noch unerschüttert," so too would Titchener maintain the primacy of pure science over applied.⁴ As his student E. G. Boring would later write, "Titchener stood in America for the 'pure' introspective psychology" and "the key to his position on almost all crucial matters lies in the word *pure*."⁵

Titchener would begin his lecture entitled "The Past Decade in Experimental Psychology" with the rhetorical question "if one were asked to sum up, in a sentence, the trend of psychology during the past ten years, one's reply would be: Psychology has leaned, very definitely, towards application."⁶ Following Wundt's lead Titchener offered as evidence for this trend a few publications and journals of note. Meumann, for example, a pioneer in educational psychology in Germany, was cited for founding the *Archiv für gesamte Psychologie* in 1903. Unlike his teacher Wundt's *Philosophische Studien*, Meumann's journal embraced a catholic editorial policy that opened its pages to psychological research bearing on a wide range of problems in education, criminology and medicine. In his introduction to the first issue of the *Archiv*, Meumann explained that while it was

Titchener's Laboratory Investigations, 1891-1927," in *Psychology in Twentieth-Century Thought and Society*, ed. Mitchell Ash and William Woodward, 35-57 (London: Cambridge University Press, 1987).

⁴ Wundt continues, "und er hat nicht zum wenigsten auch innerhalb der Technik in Mitteln, welche Unternehmungen, wie die großen Zeißwerke in Jena oder eine große chemische Fabriken, außerhalb des Kreises ihrer eigenen praktischen Sphäre der Wissenschaft zur Verfügung stellen, seinen Ausdruck gefunden." Wilhelm Wundt, "Über reine und angewandte Psychologie," *Psychologische Studien* 5, no. 1 (1909): 13.

⁵ E. G. Boring, *A History of Experimental Psychology* (New York: D. Appleton-Century Company, 1929): 410.

⁶ E. B. Titchener, "The Past Decade in Experimental Psychology," *The American Journal of Psychology* 21, no. 3 (July 1910): 404-421.

necessary for psychology to initially stick to the pure science path in order to establish a firm scientific foundation and demarcate itself from other disciplines, psychologists' attention had increasingly been drawn to practical questions no less worthy of serious and sustained scholarly attention.⁷

Coincident with the appearance of the first volume of the *Archiv* was that of the *Beiträge zur Psychologie der Aussage*, founded in 1903 by William Stern, a *Privatdozent* at the University of Breslau. Despite the suggestive title, Stern's journal covered more ground than just the psychology of witness testimony; it also covered psychology in relation to jurisprudence, pedagogy, psychiatry and historical research. This larger project was outlined in its inaugural article penned by Stern entitled "Angewandte Psychologie." Although we will return to Stern later, suffice it to say that it was in this essay that the word *Psychotechnik* was coined.⁸ This article was also the foundation for Stern's first lecture at Clark, which in fact was the first lecture of the conference following the opening remarks of Clark's President G. Stanley Hall. But returning to Stern's journal, as Titchener noted in his lecture, the *Beiträge* in 1907 became the *Zeitschrift für angewandte Psychologie*, the first journal of applied psychology as such. Not until 1917 would a comparable journal emerge in the United States.⁹ Although ignored by Titchener, Wundt in his essay would point out that the *Zeitschrift* was the organ for the "Institut für

⁷ Friederich Meumann, "Zur Einführung," *Archiv für Gesamte Psychologie* 1 (Leipzig: Verlag von Wilhelm Engelmann, 1903): 1-8.

⁸ "[Die Psychotechnik liefert] die Hilfsmittel, wertvolle Zwecke durch geeignete Handlungsweisen zu fördern." William Stern, "Angewandte Psychologie," *Beiträge zur Psychologie der Aussage* 1, no. 1 (1903): 28.

⁹ On the founding of the American *Journal of Applied Psychology* see: Roger K. Thomas, "Ludwig Reinhold Geissler and the Founding of the 'Journal of Applied Psychology'," *American journal of Psychology* 122, no. 3 (2009): 395-403.

angewandte Psychologie und psychologische Sammelforschung," established by Stern and Otto Lipmann in Berlin in 1906.

Other examples supplied by Titchener included a 1904 quotation from Alexius Meinong apropos of applied psychology's ascent;¹⁰ Jung's *Diagnostische Assoziationsstudien* (1906-); Meumann's two-volume tome on experimental pedagogy (1907); Münsterberg's bestseller *Psychotherapy* (1909); and Henry Watt's *Economy and Training of Memory* (1909). It was also noted that in 1908 Alfred Binet officially dedicated his *L'année psychologique* "to the cause of practice." Here Titchener was in fact referencing the preface to the 1907 issue of *L'année psychologique* in which Binet would write, "Notre intention est de donner dorénavant une place prépondérante, dans ce recueil, à une psychologie orientée vers les questions pratiques et sociales."¹¹ Although each author couched their new (or at least newly explicit) emphasis on application in slightly different language, the surge of such statements in North America, Germany and France between 1906 and 1909 indicate a rather remarkable transnational movement. Moreover, three chief areas of applied psychology emerged, educational psychology (e.g. child-study, child psychology, developmental and genetic psychology), forensic psychology (e.g. psychology of witness testimony, lie detection, criminology, morbid psychology), and clinical psychology (e.g. abnormal and pathological psychology, psychotherapy). Put more simply, early-applied psychology coalesced around the problems of the classroom, courtroom and clinic.

Of course, Titchener was not at Clark to applaud this development, rather his mission was to warn against what in his mind was an overzealous rush to apply laboratory

¹⁰ "...ja die experimentelle Psychologie scheint auf dem Wege, eine populäre Wissenschaft zu werden, seit es ihr gelingt, mit dem Bedürfnissen des praktischen Lebens engere und hoffentlich immer enger werdende Fühlung zu nehmen." A. Meinong, *Untersuchungen zur Gegenstandstheorie und Psychologie* (Leipzig: Verlag von Johann Ambrosius Barth, 1904): V.

¹¹ Alfred Binet, "Préface," *L'année psychologique* 14 (1907): v.

psychology to practical life. "Under these conditions," he told his audience, "the diversion into practical channels of energy which would otherwise have been expended in the service of the laboratory must be regarded as a definite loss to pure science."¹² Several years later Titchener would elaborate on this loss by arguing that the attitude of science was anathema to what he called technology, a term which for him included all applied sciences from engineering and medicine to agriculture, hygiene and industrial chemistry. To describe the "attitude of science" he needed just three adjectives: "disinterested, observational, and analytical." The technological point of view, on the other hand, he defined as the narrow "pursuit of some practical end" by any means necessary.¹³

Titchener's defensive plea for pure psychology, with its undeniable echo of physicist Henry Rowland's "Plea for Pure Science" of three decades earlier, was justified to a certain extent by the fact that the psychological conferences were lumped together with the pedagogy and school hygiene meetings. Moreover, of the keynote lecturers Titchener was the only participant whose work was devoted to "experimental psychology pure and simple," whereas the work of William Stern, Carl Jung, Sigmund Freud and Adolf Meyer, four of the seven honorary lecturers, all fell under the umbrella of applied psychology.¹⁴ For example, Jung lectured on his association test and its psychotherapeutic applications, Stern on the psychology of witness testimony and child psychology and

¹² E. B. Titchener, "The Past Decade in Experimental Psychology," *The American Journal of Psychology* 21, no. 3 (July 1910): 407.

¹³ E. B. Titchener, "Psychology: Science or Technology?," *The Popular Science Monthly*, January 1914: 39-51. Titchener would also contrast the science and technology, scientists and technologist in: E. B. Titchener, "On Psychology as the Behaviorist Views It," *Proceedings of the American Philosophical Society* 53, no. 213 (April 1914): 1-17; *Systematic Psychology: Prolegomena* (Ithaca: Cornell University Press, 1972 [1929]).

¹⁴ There was also Leo Burgerstein from the University of Vienna who lectured on "The Main Problems of Schoolroom Sanitation and School Work" and the question of co-education, Herbert Jennings on comparative psychology, and Franz Boas on "Psychological Problems in Anthropology."

Freud on the development and methodology of psychoanalysis.¹⁵ One might note that despite the obvious resonance of the journal founded by Freud in 1907, *Schriften zur angewandten Seelenkunde*, it was not included in Titchener's survey of applied psychology. Indeed the simple fact that Freud used the word *Seelenkunde*, as opposed to *Psychologie*, was reason enough for Titchener to ignore Freud. For experimental psychologists *Seelenkunde* was often associated with a non-experimental form of psychology and held deep historical associations with psychological practices they hoped to distance themselves from.

Titchener's condescending attitude towards Freud was already on display in a letter to Münsterberg dated March 10, 1908. After apologizing for not answering an invitation from Münsterberg to lecture in his class at Harvard, Titchener wrote, "I had completely forgotten it,-- and I am afraid that that means, on Freud's principles, that the idea was unpleasant!"¹⁶ The feeling, to be fair, was mutual. According to Edmund Jacobson,¹⁷ a former student of both Titchener and Münsterberg, when the two men first met at Clark Freud apparently remarked, "O, Sie sind der Gegner" [Oh, you are the Enemy].¹⁸

As I have shown, the Clark Conference represented a critical juncture in the history of applied psychology that has been largely overshadowed by the narrative of Freud's American debut. That being the case, the question then still remains, where was

¹⁵ All three lectured in German, but provided manuscripts for translation the following year in the *American Journal of Psychology*: William Stern, "The Psychology of Testimony," *The American Journal of Psychology* 21, no. 2 (April 1910): 270-282; Sigmund Freud, "The Origin and Development of Psychoanalysis," *The American Journal of Psychology* 21, no. 2 (April 1910): 181-218; Carl G. Jung, "The Association Method," *The American Journal of Psychology* 21, no. 2 (April 1910): 219-269.

¹⁶ Titchener to Münsterberg, 10 April 1908. Ms. Acc. 2191 (7-14, 14a-15), HM-BPL.

¹⁷ On the influence of Titchener and Münsterberg on Jacobson's interesting work see: Kenton Kroger, "The Progress of Introspection in America, 1896-1948," *Studies in the History and Philosophy of Biological and Biomedical Sciences* 34 (2003): 77-108.

¹⁸ Rand B. Evans and William A. Koelsch, "Psychoanalysis Arrives in America: The 1909 Psychology Conference at Clark University," *American Psychologist*, August 1985: 942-948.

Münsterberg? After all, Clark University was only 45 miles west of Cambridge and his Harvard colleagues William James, E. B. Holt, Paul Hanus, E. W. Katzenellenbogen and former students Bird T. Baldwin, J. Carleton Bell and C. S. Berry were all present. Moreover, much like Stern, Münsterberg had recently established his own applied psychology institute of sorts in the form of a department of applied psychology. During the 1907-08 academic year Münsterberg announced in his annual report

the creation of a department in the laboratory devoted to applied psychology...We understand by applied psychology inquiry into the practical help which experimental psychology can give to the various professions and industries, especially to the work of the teacher, of the lawyer, and of the physician, but hardly less to that of the worker in commerce and industry, in art, in social reform, etc. The aim is thus the development of a science which is related to psychology as engineering is to physics.¹⁹

This institutional development was complemented by the completion of Münsterberg's applied psychology trilogy that began with *On the Witness Stand* in 1908, followed by *Psychotherapy* and *Psychology and the Teacher*, the last of which he finished just prior to the Clark Conference. That these works alongside the handful of articles he had published on applied psychology between 1907 and 1909 left an imprint on the popular mind was exemplified by the appearance of the poem with which we began, "Omniscient Muensterberg," which appeared in the *Boston Globe* on the same day that Freud, Jung, Titchener and Stern were all lecturing at Clark.

Of course, Münsterberg had his reasons for not attending. In an article in *McClure's Magazine* entitled "The Third Degree," later published in *On the Witness Stand*, Münsterberg had described the possible use of the association test as an interrogation

¹⁹ Hugo Münsterberg, "The Psychological Laboratory," *Reports of the President and the Treasurer of Harvard College, 1907-1908* (Cambridge, MA, 1909), 259-260.

technique in lieu of the inhumane "third degree" techniques "that brutalize the mind and force either correct or falsified secrets to light."²⁰ Although he had not claimed to be the originator of this method Jung had received a copy of the article and quickly accused Münsterberg of academic impropriety as he had applied this technique to a criminal suspect in 1905 and had not cited.²¹ Remarkably Jung wrote directly to President Eliot regarding the matter. Münsterberg was rightfully outraged. For an article in *McClure's* it would have been rather unusual to cite esoteric German sources and indeed nowhere in the article had Münsterberg implied that he had been the originator of the idea. Neither was Jung for that matter. Max Wertheimer and Julius Klein had applied the word association test as a technique for determining guilt in Berlin at the same time. Moreover, Münsterberg himself had sent a copy of the article to Jung with a friendly note indicating that although it was not possible to cite him in a popular piece, in *On the Witness Stand* he would be sure to give full acknowledgement.²²

Most closely related to Münsterberg's decision to skip out on the Clark Conference was Hall's recent review of *On the Witness Stand* in the *American Journal of Psychology*. In a letter to Titchener, Hall would write, "I have written a careful but pretty negative review of Münsterberg's 'On the Witness Stand,'"

but Sanford rather intimates that you and Münsterberg have become chummy and that you would not approve. Of course, I have the right to print anything I wish over my own name. I consider that book the most flagrant case I know of of 'death and oblivion to those who said our things before us.' Most of these Freud,

²⁰ Hugo Münsterberg, "The Third Degree," *McClure's Magazine* 29, no. 6 (October 1907): 622.

²¹ Carl Jung, "Die psychologische Diagnose des Tatbestandes," *Zeitschrift für Schweizerische Strafrecht* 18 (1905): 369-394.

²² Münsterberg to Eliot, 29 October, 1907, Records of the President of Harvard University Charles William Eliot, UAI 5.150, Box 106, Harvard University Archives.

Stern, and other things are told in diluted form with petty variations, as if they originated in the fertile mind of the author; but I will cork up.²³

Given this background it is hardly surprising that Münsterberg decided to skip Clark to lecture on "Education and Experimental Psychology" in Winnipeg at the British Association for the Advancement of Science. He did, however, miraculously return in time to host William and Clara Stern at their family cottage in Clifton, Massachusetts where he surely got all the gossip from the conference.

It had not always been the case however, that Münsterberg so closely identified with the trend towards application. In fact, during the 1890s his position was far closer to that of Titchener than to Stern. At the same time, Münsterberg's turn to applied psychology was not abrupt as some have suggested, but a gradual process that closely coincided with many of the important contributions Titchener had outlined in his lecture at Clark in 1909. However, unlike the vast majority of his contemporaries who tended to specialize in one or another field of applied psychology, Münsterberg fearlessly aimed to tackle them all. Therefore by examining the incremental shift in Münsterberg's emphasis from so-called pure psychology to applied, we begin to see the collective factors that contributed to the dramatic rise of applied psychology in the first decade of the twentieth century.

This chapter then aims to understand the shift towards application in psychology through the prism of Münsterberg's own path into the psychology of the classroom, courtroom and clinic. Each of these spaces represented critical boundary-disputes in the history of psychology that continue to the present day.

²³ G. S. Hall to E. B. Titchener, 10 February 1909, Box 2. Edward Bradford Titchener Papers, 1887-1940, #14-23-545. Division of Rare and Manuscript Collections, Cornell University Libraries.

CLASS CONFLICT: CHILD-STUDY

In 1891 William James begrudgingly accepted the assignment handed down from President Eliot to deliver a series of lectures on psychology for teachers.²⁴ In a letter to William Torrey Harris, U.S. Commissioner of Education and leader of the St. Louis Hegelians, James would write, "They are forcing me to give ten lectures here on 'Topics of Psychology of interest to Teachers.' It is lamentable work!"²⁵ Claiming to know nothing on the so-called subject of "pedagogic psychology," James reached out to Paul Hanus, the recently appointed Professor of the History and Art of Teaching for a reference. "Can you send me the exact name of the McClellan who has written a pedagogic psychology?" James asked, "Too many McC.'s in the college catalog for convenient search."²⁶ The author he was after was James A. McLellan (with one "c"), Director of the Normal Schools in Ontario, Canada; the book, *Applied Psychology: An Introduction to the Principles and Practice of Education* (1889). In subsequent printings John Dewey would curiously appear as co-author although his involvement in the project was limited to an advisory role.²⁷ Another piece of source-material James relied on was a reprint of a lecture series by

²⁴ Arthur G. Powell, *The Uncertain Profession: Harvard and the Search for Educational Authority* (Cambridge, MA: Harvard University Press, 1980): 46

²⁵ William James to W. T. Harris, 14 November 1891, *The Correspondence of William James, Volume 7, 1890-1894* (Charlottesville: University Press of Virginia, 1999), 220.

²⁶ William James to P. H. Hanus, 12 February 1891, Paul Henry Hanus Papers, HUG 4447.5.5, Correspondence Chronological File, 1891-1902, Harvard University Archives.

²⁷ Jo Ann Boydston, *A Note on Applied Psychology*, Vol. 3, in *John Dewey The Early Works, 1889-1892*, xxii-xix (London: Southern Illinois University Press, 1969); James A. McLellan, *Applied Psychology: An Introduction to the Principles and Practice of Education* (Toronto: The Copp, Clark Company, Ltd., 1889).

Joshua G. Fitch, Principal of the Normal College of the British and Foreign School Society.²⁸

These two sources are telling as the lectures were part of Harvard's "Normal Course" initiative, a series of lectures to be taught by faculty in every department "adapted to the needs of college graduates who wish to prepare themselves for positions as teachers in the High Schools of the State."²⁹ Despite such high-minded language, behind this effort was the rather cynical motivation of undercutting a bill before the Massachusetts legislature to fund a new state normal school. As historian of education Arthur Powell has written, "If Harvard took the lead, teacher education might be shaped in Massachusetts on Eliot's terms."³⁰

As James was largely coerced into giving the lectures it is not surprising that he approached the subject of psychology for teachers with considerable caution. The professionalization of education that had gained so much momentum in the 1890s, had led to a growing interest among teachers in psychology as a scientific foundation for pedagogy.³¹ The child-study movement led by G. Stanley Hall, James' former student and President of Clark University, further spurred this fascination with psychology by

²⁸ Joshua G. Fitch, *The Art of Securing Attention* (New York: E. L. Kellogg & Co., 1891). James kept a copy of this pamphlet with his "Talks to Teachers" notebook. William James notes for Talks to Teachers. William James Papers (MS Am 1092.9), folder 1. Houghton Library, Harvard University.

²⁹ Faculty of Arts and Sciences Records, Vol. I 1890, Harvard University Archives, Harvard University.

³⁰ Arthur G. Powell, *The Uncertain Profession: Harvard and the Search for Educational Authority* (Cambridge, MA: Harvard University Press, 1980): 38; Arthur G. Powell, "The Education of Educators at Harvard 1891-1912," in *Social Sciences at Harvard 1860-1920: From Incultation to the Open Mind*, 223-312 (Cambridge, MA: Harvard University Press, 1965).

³¹ James Dale Hendricks, "The Child-Study Movement in American Education, 1880-1910: A Quest for Educational Reform Through a Scientific Study of the Child," Ph.D. Dissertation, Indiana University (1968); Arthur G. Powell, *The Uncertain Profession: Harvard and the Search for Educational Authority* (Cambridge, MA: Harvard University Press, 1980); J. R. Robarts, "The Quest for a Science of Education in the Nineteenth Century," *History of Education Quarterly* 8, no. 4 (1986): 431-446.

bringing schoolteachers directly into contact with the psychologists. In the end, James' message to the teachers was simple, "Psychology is a science, and teaching is an art...To know psychology, therefore, is absolutely no guarantee that we shall be good teachers. To advance to that result, we must have an additional endowment altogether, a happy tact and ingenuity to tell us what definite things to say and do when the pupil is before us."³² Josiah Royce, James' friend and colleague in the Philosophical Division at Harvard, had made a similar argument in the *Educational Review* that same year when he wrote, "Teaching is an art. Therefore there is indeed no science of education."³³ And in the years that Royce was responsible for the psychological lectures to teachers, he would similarly insist on the importance of the teacher's "native tact and his acquired wisdom."³⁴

It was also around this time that Münsterberg, in Freiburg, began lecturing on pedagogy although there are no records of the contents of these lectures. However, in 1891 he would carry out a preliminary series of tests on children in a nearby school. Münsterberg's idea was to study the relationship between educational environment and occupational disposition. "I have begun," he explained

statistische Erhebungen über den Einfluss der berufsmässigen Beschäftigung auf die psychische Constitution zu veranstalten; ich will untersuchen, ob der geistige Habitus des Arbeiters, des Arztes, des Juristen, des Lehrers, des Kaufmanns, des Offiziers u.s.w. in den Elementen erkennbare Verschiedenheiten aufweist, und will vornehmlich die verschiedenen Schularten, Gymnasium, Realgymnasium, Realschule, Volksschule, Mädchenschule u.s.w Klasse für Klasse prüfen, um den Einfluss des verschiedenartigen Unterrichts auf die geistige Organisation des

³² William James, *Talks to Teachers on Psychology: And to Students on Some of Life's Ideals* (New York: Henry Holt and Company, 1912): 9.

³³ Josiah Royce, "Is There a Science of Education?," *Educational Review* 1 (February 1891): 121-132.

³⁴ Josiah Royce, "Lectures to Teachers," 1893, Papers of Josiah Royce, HUG 1755.5, Harvard University Archives, Harvard University.

Kindes in exacter, für die Schulfrage vielleicht nicht ganz unwesentlicher Weise festzustellen.³⁵

As the tests had to be undertaken outside the laboratory Münsterberg first had to modify his apparatus for convenient use in the classroom. Therefore instead of using his normal chronoscope that could measure time in thousandths of a second, he instead used a stopwatch that he rigged so that it could be triggered by foot leaving his hands free to administer the experiment. The test began with Münsterberg presenting the test subject [*Versuchsperson*] with a list of ten words printed on a card one beneath the other. Some words were monosyllabic, others with multiple syllables. As soon as the card was shown the stopwatch was tripped and the test subject (i.e. the student) was to read aloud each words as quickly as possible. Between exposures the subject was then shown color drawings associated with the words. In the following trial the same card was then shown but this time instead of reading the words they were to name the color associated with the word. A similar test was then carried out using simple images of animals, plants, fruit, furniture, body parts, household appliances and so on as visual stimuli. In yet another experiment Münsterberg employed his famous *Augenmassapparat* discussed in chapter one.

The details of these tests are not so important as Münsterberg's experience with them. Münsterberg, as already mentioned was not in favor of bringing children into the laboratory. At the same time, transferring laboratory techniques and apparatus into the classroom was incredibly challenging. This problem in fact would inform part of his later criticism of the methods employed in child study and child psychology. Lastly, here we

³⁵ Hugo Münsterberg, "Zur Individualpsychologie," *Zentralblatt für Nervenheik, und Psychiatrie* 14 (1891), 196-198. B254/6, Universitätsarchiv der Universität Freiburg/Breisgau.

have evidence that Münsterberg quite early on was grappling with the question of the relationship between the laboratory and everyday life.

It is also worth noting the fact that this study was not published in Münsterberg's laboratory organ the *Beiträge zur experimentellen Psychologie*, rather in the *Zentralblatt für Nervenheilkunde und Psychiatrie*. This decision reflects a desire to clarify the boundaries of normal psychology by segregating it from the regular laboratory, while at the same time maintaining the relevance of the psychologist in a variety of practical domains. Shortly after arriving at Harvard Münsterberg would explain his policy as follows:

Our laboratory has thus far, together with nearly all the rest, confined itself in the main to psychological experiments upon normal adult men. And that must, indeed, remain its chief aim. But related problems can also come in... Granted...experiments on children and on the sick, perhaps even on hypnotic subjects, can for practical reasons be better carried on at home and in the clinic than in the psychological laboratory.³⁶

What Münsterberg did not approve of, however, were the methods employed by G. Stanley Hall and his army of child study supporters. One of Hall's earliest ventures into child psychology took place in 1882 in the Boston public school system. Taking inspiration from an investigation carried out in Berlin more than a decade earlier, the basic premise of the study was to collect data on the basic knowledge of children upon entering school for the first time (i.e. kindergarten). To carry out this investigation Hall relied on sixty schoolteachers to interview students regarding their familiarity with certain objects and concepts. A questionnaire of one hundred thirty-four items drawn up for this purpose was supplied to these teachers in advance. Of particular interest to Hall was

³⁶ Hugo Münsterberg, "The New Psychology, and Harvard's Equipment for Teaching It," *The Harvard Graduates' Magazine* 1, no. 2 (January 1893): 201-209.

comparing the baseline knowledge of rural versus city children. After collecting and analyzing the teachers' data he concluded that the city had a degenerative influence on the adolescent mind.³⁷

The use of questionnaires, or syllabi as Hall called them would become the chief method of child study. Each syllabus provided teachers with a focused topic and set of prompts that were to guide classroom observation. Syllabi topics included everything from anger and dolls to attention and common habits. Once observations were carefully recorded the results were to be returned to the corresponding psychologist listed at the bottom of the syllabus. Results were then collated and analyzed by the psychologists and often published in journals such as Hall's *Pedagogical Seminary*. The lack of standardization in the syllabus method was but one of its many defects.

Münsterberg first voiced his objections to Hall's brand of child psychology at the Brunswick Hotel in Boston at a meeting of the Massachusetts Schoolmasters Club on March 27, 1895. Alongside Münsterberg other guests invited to speak that evening on the topic of the "Old Psychology and the New" included W. T. Harris (Commissioner of Education), Larkin Dunton (Headmaster of the Boston Normal) and G. Stanley Hall.

According to several accounts of the event, Münsterberg had instantly charmed his audience with his foreign accent and heavy-handed rhetoric. After a self-deprecating comment about his poor English (he did not begin lecturing in English until 1894), Münsterberg would close his introductory remarks with the memorable line "you asked me, as an experimental psychologist, to tell you how the educational future will depend upon experiments on children, and all that I have to say out of my deepest heart is simply: *I do not believe in it!*"

³⁷ G. Stanley Hall, "The Contents of Children's Minds," *Princeton Review*, 1883: 249-273.

I do not believe in it, and the overwhelming movement towards psychology among the elementary teachers seems to me a high tide of confusion and dilettantism...Call me conservative, call me reactionary, call me ignorant, but I adhere to my belief, that *the individual teacher, for his teaching methods, does not need any scientific psychology, and that tact and sympathy and interest are more important for him than all the twenty-seven psychological laboratories of this country.*³⁸

Here we should note that Münsterberg was essentially following the lead of both William James and Josiah Royce. As both his colleagues had earlier argued, pedagogy was an art in which "tact and sympathy" took precedence over psychological expertise. Moving on to the specific issue of child psychology and the child-study movement so closely associated with Hall's institution of Clark, Münsterberg would state that while teacher-collected classroom observations may offer some interesting material for the psychologist, their value was severely limited as the teacher, unlike the psychologist, was an untrained observer. More worrisome for Münsterberg, however, were efforts to engage teachers as experimenters. Alluding to his own efforts in Freiburg discussed earlier, Münsterberg would state "I know how extremely difficult it is to bring out, especially with poor instruments, and in a schoolroom, really reliable material from experiments on children, and unreliable results are, of course, worse than no results at all, as they push forward misleading conclusions."³⁹

To be clear, Münsterberg like James and Royce, was not arguing that psychology had nothing to offer education, rather that the teacher should not feign being a psychologist or attempt to apply laboratory psychology directly to the practice of teaching. However, by 1898 Münsterberg alongside Royce would begin to envision an

³⁸ Hugo Münsterberg, "The New Psychology," in *"The Old Psychology and the New" addresses before The Schoolmasters' Club April 27, 1895* (Boston: New England Publishing Company, 1895).

³⁹ Ibid.

alternative means for bringing psychology to bear on pedagogy.⁴⁰ Speaking before the Harvard Teachers' Association Münsterberg would argue for a new kind of cooperation between educators and experimental psychologists. In essence, his argument was as follows: The psychologist possesses the *means*. The teachers and educators on the other hand dictate the *ends*. The educational expert, say from a teacher's college or school of education, may undertake research in the laboratory under the psychologists' supervision based on problems that they consider important. By adjusting research to practical problems, as opposed to theoretical ones, there will begin to develop a form of psychological knowledge fit for pedagogical consumption. However, such knowledge or pedagogical advice should not simply be left to the teacher to apply. For this, Münsterberg called for a new profession, the consulting school psychologist, who would act as a middleman between the laboratory and the classroom ensuring the safe transference of psychological techniques into pedagogical advice.

Münsterberg's vision of a new profession anticipated his later characterization of the psychotechnician, that is, the expert middleman called upon in practical life to intervene in any number of contexts. However, before such a profession could be established new techniques [*Techniken*] would have to be developed around discrete educational problems as opposed to the purely theoretical questions that drove earlier psychological investigations. As Münsterberg would later explain in *Psychology and the Teacher*:

Simply to take the ready-made material of general psychology would be useless. Psychology has certainly made thousands of experiments, for instance, on attention; yet it would be doubtful if any of these experiments could be carried directly over into the classrooms and conclusions drawn from them as to how the attention of the school children is to be secured. Those experiments were not

carried on for practical purposes; they were made in order to understand the mechanism and the elements of attention, its physiological conditions, its relation to other mental states, and so on. It was necessary [therefore] to vary these experiments in new ways and to make them serviceable for the teacher.⁴¹

In other words, applied psychology did not mean simply to apply laboratory psychology to the classroom, courtroom, and clinic, rather it required developing new methods and techniques around problems derived from these spaces. Here the definition Münsterberg gives to the field in his 1907-08 annual report for the Psychological Laboratory becomes clearer. "We understand by applied psychology inquiry into the practical help which experimental psychology can give to the various professions and industries, especially to the work of the teacher, of the lawyer, and of the physician, but hardly less to that of the worker in commerce and industry, in art, in social reform, etc. The aim is thus the development of a science which is related to psychology as engineering is to physics." Therefore like the German term for engineer, *Techniker*, Münsterberg would call this new professional applier of psychological techniques the *Psychotechniker*.⁴²

THE COURTROOM

Contrasted with the general enthusiasm psychologists were met with in the educational community, lawyers were more reluctant to accept psychologists' expertise. Again, the Clark Conference here serves as a useful point of reference for illustrating the growing interaction between psychology and the law. Stern, as we have already seen, had

⁴¹ Hugo Münsterberg, *Psychology and the Teacher* (New York: D. Appleton & Co., 1909): 97.

⁴² Hugo Münsterberg, *Grunzüge der Psychotechnik* (Leipzig: Verlag von Johann Ambrosius Barth, 1914).

founded a journal devoted to the psychology of witness testimony in 1903.⁴³ Franz von Liszt, the prominent German legal scholar and penal reformer, had inspired Stern's work on the subject. In 1901 Liszt had staged an incident in one of his seminars where two students began to argue until one pulled a revolver on the other. Immediately after the fraud was revealed the seminar participants were all asked for their individual testimonies. Stern developed various iterations of this experiment in subsequent years.

Approaching the intersection of psychology and law from a different angle Jung had applied his association test method to assess the testimony of criminal suspects as early as 1905 while Freud had lectured to law students in Vienna in 1906 on "Psychoanalysis and the Ascertaining of Truth in the Court of Law."⁴⁴ It was also in 1906 that the Chicago alienist John Sanderson Christison on behalf of the convicted murderer Richard Ivens contacted Münsterberg, William James and a number of other leading American psychologists for their expert opinions on the case. Christison believed that the police had produced a false confession and was desperately searching for scientific authorities to help sway public opinion, which had been set on the boy's guilt before he even went to trial. Both Münsterberg and James sympathized with Ivens and made public statements to the effect that indeed the police had produced a false confession by way of hypnotic suggestion during the interrogation process.

Moved by the case Münsterberg published an article the following January entitled "Untrue Confessions" in which he recounted the tragic details of the Ivens case as well as the dramatic public outcry over the armchair interventions of psychologists such as he and James had made. "It is a sad story which I am going to report today," his article

⁴³ Binet, as early as 1900, had connected his own studies on the testimony of children to possible application in a legal context.

⁴⁴ Hugo Münsterberg, "Untrue Confessions," *The Times Magazine*, January 1907: 137-144.

began, "a weird tragedy of yesterday. I am most seriously convinced that it is a tragedy not only of crime but also of human error and miscarried justice, and my scientific conscience as a psychologist compels me to speak of it, because the tragedy of yesterday may come up again, in some form, to-morrow."⁴⁵

Even though his opinion was seconded by James, Max Meyer, Joseph Jastrow, Frederick Peterson among many other leading authorities, public outcry was disproportionately directed towards Münsterberg. Although, to be fair, Münsterberg had been somewhat tactless when he wrote to Christison in a letter subsequently published that "The witches of the seventeenth century were burned on account of similar confessions, and the popular understanding of mental aberrations has not made much progress since that time."⁴⁶ The Chicagoans who read this line did not take kindly to the accusation that Ivens was the victim of a witch-hunt and that they were the hunters. However, if the backlash from the Ivens case was bad, Münsterberg's involvement in the Big Bill Haywood trial would be far worse.

In June 1907 Münsterberg made the much-publicized journey from Boston to Boise to observe in court and study the convicted murderer Harry Orchard. "After examining friend Orchard, the eighteen-fold murderer," he wrote in jest to Yerkes back in the laboratory, "I feel that I have enough if I stay till Friday afternoon or evening."⁴⁷ While in Boise Münsterberg had been granted the unique opportunity to spend time alone with Orchard to carry out an array of psychological tests. This investigation, however, was to have no bearing on the court proceedings and all conclusions were to be

⁴⁵ Ibid.

⁴⁶ J. Sanderson Christison, *The Tragedy of Chicago: A Study in Hypnotism* (Chicago: 1906).

⁴⁷ Hugo Münsterberg to R. M. Yerkes, 26 June 1907. Box 35, Folder 676, Robert Mearns Yerkes Papers. Manuscripts and Archives, Yale University Library.

kept strictly confidential. Unfortunately, on the train ride back to Boston, Münsterberg, unaware that he was speaking to a journalist leaked that he believed Orchard's confession to be true based on his experiments (many believed he was covering up for the labor leader Bill Haywood) unleashing a veritable media firestorm. This story, however, has been told many times and need not be repeated here.

More interesting for our purposes is a proposal Münsterberg would make in the aftermath of his experience with the Ivens and Haywood trials. Speaking in March 1908 at the Commercial Club of Boston, Münsterberg would announce that the

time has come when it is absolutely necessary to emancipate the courtroom from the deliverances of so-called common sense. For 'common sense' leads to a set of illusions which are most dangerous. Yet while various departments of life, such as medicine and pedagogy, are sympathetic to psychology, lawyers are the last who are willing to accept what science suggests...The psychologists wait for better times, when their experts will not be in the service of any party, but will be appointed to aid it by the court alone. Even before a case comes into court, the psychologist should step in and, in cooperation with other social factors, consider what can be done toward suppressing crime or making it less possible.⁴⁸

In 1913 Münsterberg's dream would be realized when his student from the Psychological Laboratory, Victor Vance Anderson was appointed as psychologist to the Boston Municipal Court. As the *Boston Daily Globe* reported, "In February, 1911, Dr. Anderson came to Cambridge and has been connected since then with Harvard University and the Psychopathic Hospital. Last year he acted as assistant in philosophy E at Harvard College, Prof. Munsterburg's noted course. At the Psychopathic Hospital he has been investigating particularly the field of mental deficiency."⁴⁹

⁴⁸ "Court Psychology. Prof. Muensterberg Says it is to Have its Province." *Boston Daily Globe* (March 20, 1908): 7

⁴⁹ "Judges Appoint Psychologist." *Boston Daily Globe* (Sept. 27, 1913): 1.

THE CLINIC

As indicated in the many newspaper reports on Anderson's appointment his unique qualifications came from his association with Münsterberg at the Harvard Psychological Laboratory as well as his experience working in the Boston Psychopathic Hospital. Before coming to Harvard in 1911 Anderson had practiced medicine for seven years in Virginia. He was likely attracted to Harvard by Münsterberg's interest in establishing closer ties between psychology and medicine. In 1906, for example, Münsterberg joined the editorial board of Morton Prince's *Journal of Abnormal Psychology* and in *Psychotherapy* he had advocated for the "introduction of normal psychology and abnormal psychology into the medical curriculum."⁵⁰ Although his proposal initially had some traction in the Harvard Medical School this it was eventually shot down. In a letter to James Jackson Putnam, Münsterberg expressed his disappointment in the vote of the Medical Faculty to omit his Intro to Psychology lecture and all other psychology courses from their recommended coursework for undergraduates hoping to pursue a career in medicine. "It is bad enough," he told Putnam, " that the Medical School does not supply special courses in abnormal psychology, separated from neurology and psychiatry, but it is still worse if the Medical Faculty ignores so completely this urgent need of our time."⁵¹

The year before Anderson arrived at Harvard Münsterberg had expanded the psychology department's offerings in abnormal psychology through a lecture course offered by Dr. Katzenellenbogen from the Danvers State Hospital and had supported Putnam's efforts to bring Ernest Jones, Freud's great champion in North America, to

⁵⁰ Hugo Münsterberg, *Psychotherapy* (New York: Moffat, Yard and Company, 1909): ix.

⁵¹ Hugo Münsterberg to J. J. Putnam, 29 April, 1909, Records of the President of Harvard University Charles William Eliot, UAI 5.150, Box 106, Harvard University Archives.

Harvard.⁵² The most important development, however, was the establishment of the Boston Psychopathic Hospital in 1912 under the directorship of E. E. Southard with Robert Yerkes appointed as chief psychologist. With Yerkes installed at the Psychopathic Hospital, Anderson was able to find part-time employment shortly after the hospital opened where he was given charge of the outpatient "clinic of mental defectives" where he received cases from social workers and occasionally the courts. The rest of Anderson's time was spent as Münsterberg's laboratory assistant.⁵³

After the appointment of Yerkes and Anderson to part-time positions the Psychopathic Hospital became a kind of exclave of the Psychological Laboratory for those students interested in abnormal psychology. In this way the Psychopathic Hospital should be considered an important precursor to the Harvard Psychological Clinic founded by Morton Prince in 1927.

On October 6, 1913 Anderson was officially appointed by Judge Bolster of the Municipal Court to assist probation officers. A similar arrangement had been made with the appointment in 1909 of William Healy as psychologist to the Juvenile Psychopathic Institute in Chicago. Healy, however, had no formal psychological training.

⁵² Hugo Münsterberg to J. J. Putnam, 25 March 1910, H MS c 4.2. James Jackson Putnam Papers, Countway Library of Medicine, Harvard University.

⁵³ V. V. Anderson to G. Stanley Hall, 12 October 1912, Correspondence Relating to Faculty & Staff Positions, B1-2-12, G. Stanley Hall Collection, Clark University, Archives and Special Collections, Worcester, Massachusetts.

THE MARKET

The psychological foundation, upon which the metropolitan individuality is erected, is the intensification of emotional life due to the swift and continuous shift of external and internal stimuli. Man is a creature whose existence is dependent on differences, i.e. his mind is stimulated by the difference between present impressions and those which have preceded.

—Georg Simmel, 1903

For the scale on which the world is organized to-day discrimination has become impossible for the ordinary purchaser. He hasn't time to cradle every egg he buys, test the milk, inquire into the origins of the meat, analyze the canned food, distinguish the shoddy, find out whether the newspapers are lying, avoid meretricious plays, and choose only railroads equipped with safety devices. These things have to be done for him by experts backed with authority to enforce their decisions. In our intricate civilization the purchaser can't pit himself against the producer, for he lacks knowledge and power to make the bargain a fair one... The simple act of buying has become a vast, impersonal thing which the ordinary man is quite incapable of performing without all sorts of organized aid.

—Walter Lippmann, 1914

It was a stomachache and a two-letter mistake that ended the life of the three-year-old John Wilbon of Richmond, Virginia. "I read 'L-y-s-o-l' for 'L-a-x-o-l,'" the errant druggist told the local papers.¹ The episode in question took place on August 27, 1910 at the drug store of William F. Warriner on 2400 Floyd Ave. Local resident, Mrs. Wilbon, arrived at Warriner's store that morning to fill a prescription for her ailing son. "She placed on the glass showcase," Warriner recalled, "a prescription and two memorandums."² Ignoring the two memos from the doctor the druggist glanced at the prescription and reading "Laxol" for "Lysol," reached for a bottle of the latter. Having received verbal confirmation that the order was correct, the unwary customer promptly

¹ *The Times Dispatch (Richmond)*, "Child Killed by Wrong Medicine," August 29, 1910: 1.

² *The Times Dispatch (Richmond)*, "Says Paper Was Tampered With," August 31, 1910: 1, 3.

paid and was on her way. Ten minutes later the druggist had a frantic mother on the line. The medicine, she told him, had had a noxious odor and after administering the formula to her son he began acting strange. No further explanation was necessary; quickly grabbing the "antidotes" Warriner headed for the Wilbon home four blocks over on 2024 Grove Avenue. He was ten minutes too late. Less than twenty-four hours later the boy had no fight left. In his signed statement to the coroner, Warriner confessed, "I undoubtedly dispensed lysol, but lysol was asked for and the name called back to the purchaser."³

The Lysol-Laxol confusion was hardly an isolated incident. Two days earlier *The New York Times* had reported an almost identical case of death by Lysol.⁴ Further raising the issue's profile was a published letter to the editor by Otto Raubenheimer, a Brooklyn pharmacy owner and outspoken advocate for the professionalization and regulation of the pharmaceutical business. Last June, he told the *Times*, at the American Pharmaceutical Association meeting in Richmond, Virginia, he had outlined four pressing issues demanding immediate redress.⁵ Item three on that list was "Similarity of names." "The coined trade-mark names in a great many instances" he told his constituents, "are too nearly alike and might even cause dangerous errors, as for instance in 'lythol,' 'lysol' and 'laxol.'"⁶

The discussion continued in various trade journals of the pharmaceutical industry. One editorial in the *American Druggist and Pharmaceutical Record* argued that the worst culprits were those "skillfully coined, euphonious trade-marked names of the proprietary

³ *The Times Dispatch*, "Child Killed by Wrong Medicine," August 29, 1910: 1, 10.

⁴ *The New York Times*, "Drug Clerk's Error Cost a Baby's Life," August 25, 1910: 1; *The New York Daily Tribune*, "Wrong Drugs, Police Say. Got 'Lysol' for 'Laxol'," August 25, 1910: 2.

⁵ Otto Raubenheimer, "Mistakes of Druggists," *The New York Times*, August 27, 1910: 6.

⁶ Otto Raubenheimer, "Chairman's Address," *The Druggists Circular*, June 1910: 322-323.

medicines." "Pankotine, a nose and throat lotion, sounds very similar to pancreatin; salguin, a cold and grippe tablet, and saloquinine; lixol, a liniment and laxol a flavored castor oil; lythol, a mouth wash, and lysol, an antiseptic solution...all sound very much like each other." This was followed by a reminder of those "fatal accidents" that had "already occurred in different parts of the United States when lysol was dispensed when laxol was called for."⁷

There were, of course, many conflicting perspectives on the issue. Some pharmacists blamed the physicians' notorious illegible handwriting, confusing drug nomenclature and lack of professional standards within their trade.⁸ Doctors largely concurred, even acknowledging their poor handwriting in some cases, but also pointing to the deceptive marketing of drugs that created consumer confusion. Drug companies, for their part, were primarily concerned with those cases of trademark infringement that not only caused dangerous confusion, but hurt their bottom line. The consumer, for the most part, had little voice in the discussion.

Then, almost by accident, Münsterberg entered the discussion after an article entitled "Psychology and Trade Marks" appeared in *The New York Times* in June 1911. "When trade marks are alleged to be infringed," the article began,

the cases are made difficult by the nature of the evidence. Just what is an 'unwary person' only the psychologist can determine. Prof. Muensterberg, who has applied his mind to this question, informs *The Times* that he will eventually have something to say from the records of his experimental laboratory at Harvard, where his

⁷ "Similarity in Pharmaceutical Nomenclature," *American Druggist and Pharmaceutical Journal*, July 1911: 24.

⁸ Indeed it was during this period that the term "pharmacist" came to hold a certain professional status distinguished from the mere "druggist." Certified pharmacies and certified pharmacists were proposals that Raubenheimer firmly supported in his 1910 address before the American Pharmaceutical Association.

assistant, Mr. Foote, is working upon sets of labels and their imitations, supplied by Mr. Edward S. Rogers, a lawyer of Chicago.⁹

The pharmaceutical nomenclature problem and that of trademark infringement would subsequently be combined in Münsterberg's laboratory after the story was picked up by George M. Besett, Chairman of the Committee on Trade-Marks for the National Wholesale Druggists Association. Shortly after reporting on Münsterberg's preliminary investigation at the National Wholesale Druggists Association's annual meeting in New York City that October, Besett, like Rogers, would supply the Harvard Psychological Laboratory with experimental material of his own in the form of confusing drug names akin to the lysol-laxol problem. As I will show later in this chapter, it was this problem that would prove of especial interest to Gustave A. Feingold, the student assigned to the trade mark problem in 1911 and who would eventually publish his dissertation on the subject in 1915 under the title "Recognition and Discrimination." However, before turning to his study it will first be necessary to give some background to how the problem first entered Münsterberg's own consciousness.

In the fall of 1911 Münsterberg would assign the trademark problem to his student Gustave A. Feingold who would take especial interest in the issue of like-sounding drug names. In drawing up his conclusions in 1914, Feingold not only would cite the famous lysol-laxol case from Richmond, Virginia, but a litany of other examples that had been supplied to him by George M. Besett, Chairman of the Committee on Trade-Marks for the National Wholesale Druggists Association. After reciting Besett's findings of

⁹ "Psychology and Trade Marks," *The New York Times*, June 1911.

omnipresent confusion in the pharmaceutical industry Feingold exclaimed, "This is enough. Now what confusion is apt to arise from such a babel of names as these?"¹⁰

In this chapter I will examine how such a problem as trademark and name confusion was first introduced into the Harvard Psychological Laboratory. Next, I will describe how this mundane consumer experience was translated into a laboratory investigation. Finally, I will reflect on the way in which the academic job market influenced Münsterberg to advise his students like Feingold to take up questions of commercial interest with an eye to future employment outside the academy.

THE PROBLEM OF THE UNWARY PURCHASER

In January 1909, Hugo Münsterberg received an article manuscript from a Chicago lawyer by the name of Edward S. Rogers. The article, entitled "The Unwary Purchaser," was an attempt to make sense of this vague judicial concept as it was employed in adjudicating on cases of trademark infringement. In such cases, Rogers explained in his letter to Münsterberg, "the person to be considered, the courts say, is not the expert or the careful person but the ordinary purchaser, or, as some judges have designated him, the unpracticed purchaser."¹¹ In sending his manuscript and introducing this vexing legal problem of the so-called unwary purchaser, Rogers hoped that Münsterberg might make an interesting experiment out of the case.

Münsterberg curiosity was piqued. "Your letter is of very high interest to me," he would write, "and I acknowledge gladly that you have turned my attention to a field of

¹⁰ Gustave A. Feingold, "Recognition and Discrimination," Ph.D. Dissertation, Department of Philosophy, Harvard University (May 1914).

¹¹ Edward S. Rogers to Hugo Münsterberg, article manuscript "The Unwary Purchaser," February 1909, Mss. Acc. 2444, HM-BPL.

applied psychology which is evidently completely neglected so far. There is indeed no reason why this whole group of problems should not be transformed into straight experimental questions."¹² To get started, Münsterberg requested that Rogers supply his laboratory with as many samples of trademarked labels and their knock-off counterparts as he could muster.



Figure 3.1: E. S. Rogers, *Good Will Trade-Marks and Unfair Trading* (Chicago: A. W. Shaw Company, 1914): 207.

¹² Edwards S. Rogers, "The Unwary Purchaser: A Study in the Psychology of Trademark Infringement," *Michigan Law Review* 8, no. 8 (June 1910): 613-622. See also: Michael Pettit, *The Science of Deception: Psychology and Commerce in America* (Chicago: University of Chicago Press, 2013); Michael J. Pettit, "The Unwary Purchaser: Consumer Psychology and the Regulation of Commerce in America," *Journal of the History of the Behavioral Sciences* 43, no. 4 (Fall 2007): 379-399.

The first batch arrived on February 17, 1909 by way of Rogers' client Quaker Oats. Included for each sample were brief product descriptions, analysis of packaging and notes on market performance. Though eager to participate in the experiment, Quaker Oats insisted the latter details remain strictly confidential.¹³ The next batch arrived at Emerson Hall two days later courtesy of other clients of Rogers such as the National Candy Company.

In late 1909, Münsterberg would provide his first account of the trademark work in his essay "Psychology and the Market." Apparently by then he had accumulated a veritable "imitation museum," which included "Tomato ketchups and sardine boxes, cigarette cases and talcum powders, spearmint gums and plug tobaccos, glove labels and vaudeville posters, patent medicines and gelatins...in interested twin and triplet forms."¹⁴

Historians of psychology have been too quick to dismiss such articles as merely popular writing. I would argue on the contrary that they served a very important function for Münsterberg and his laboratory. By writing popular pieces advertising the practical work of his laboratory Münsterberg in a sense was crowd-sourcing the public from problems warranting psychotechnical interventions. This was crucial, for according to Münsterberg, psychotechnics was not in the business of selecting what problems were worthy of its attention, rather it was only interested in applying psychological *means* towards given *ends*. In other words, by insisting that psychological problems were brought to him from without, Münsterberg believed that the psychological laboratory could claim to be ethically neutral. His favorite example on this point was a metaphor about the

¹³ Edward S. Rogers to Hugo Münsterberg, 17 February 1909, Mss. Acc. 2088, HM-BPL.

¹⁴ Hugo Münsterberg, "Psychology and the Market," *McClure's Magazine* 34, no. 1 (November 1909): 87-93.

engineer who is asked to build a bridge. The engineer never asks if a bridge here is desirable, only what is the best means to build one when and where it is desired. Like engineering, the task of psychotechnics is merely to solve the practical problems with which it has been presented by whatever means necessary.

When Münsterberg assigned the trademark problem to his student Gustave Feingold, it was his hope "that it would lead to results which may...make such a psychotechnical use possible."¹⁵ Later in this chapter we will see what solution Feingold developed, but first we need to see how this problem was transformed into a psychological experiment in the first place. "Our experiments purport to investigate," Feingold introduced his problem,

a representative cross section of the faculty of recognition. For that reason we tried to reinstate in the laboratory conditions that were analogous to those under which we perceive things in daily life. But not only must these conditions be representative of life situations, they must also be of such a nature that we can vary them quantitatively. For surely the average person's state of attention is different on a thoroughfare from what it is on a lonely road. Likewise the average woman's attention in the teeming department store is not the same as in the little village store. How can we reproduce these different forms of attention in the laboratory?¹⁶

The first step in arranging the experiment was to create a set of textual and visual stimuli of varying degrees of similarity to one another. For visual images, picture postcards were used. Twice a week Feingold would take the train into Boston to purchase new sets of postcards for the experiments. This was to ensure that for every trial the

¹⁵ Hugo Münsterberg, *Psychology and Industrial Efficiency* (Boston: Houghton Mifflin Company, 1913): 292.

¹⁶ Gustave A. Feingold, "Recognition and Discrimination," *Psychological Monographs* 18, no. 2 (February 1915): 9.

subjects' familiarity with already used images would not influence their ability to recognize differences between like images.

The apparatus used in this investigation was very simple. It consisted of a box-shaped screen, completely separating subject from experimenter. In this screen was an oval aperture through which the observer looked with both eyes at the printed card, or at the picture post cards of the later experiments, exposed on a black background. The aperture was opened and closed by a shutter which moved vertically in grooves.¹⁷

Seated in this darkened enclosure, Feingold would read to each subject seated before the screen of the apparatus the following directions:

In daily life one is occasionally confronted with the phenomenon of mistaking one name or one word for another, because they have some resemblance either in spelling, sound or meaning. Now, I am going to expose a group of words for x seconds, and after an interval of 20 seconds I shall reexpose the same group either intact or with some change. See if you can discover that change....Try not to let your mind wander during the interval. Yet be natural... In short, do your best, in your own way, to recognize a change if one occurs and tell me, if possible, what that change is.¹⁸

Curiously, omitted from the published version of Feingold's dissertation was a short but revealing passage on psychotechnics. In this redacted paragraph Feingold calls upon the same analogy to engineering and metaphor of the bridge builder frequently invoked by Münsterberg in explaining psychotechnics.

When the physicist has once developed the laws and theories of mechanics, the engineer who makes use of them in a practical way does not have to go through all the original experiments and proofs of the physicist. And when the engineer, having employed numerous formulae, has once erected his bridge, people use that structure do not pause first to investigate the validity of those formulae. If they did, ninety-nine per cent of them would never set foot on the bridge... True, the

¹⁷ Ibid., 15.

¹⁸ Ibid., 16-17.

engineer must know something about the theory of mechanics before he can make use of the laws thereof. Likewise the surgeon and physiological chemist must be men thoroughly trained in their professions before they will be taken into the confidence of the court. For similar reasons only a trained psychologist is competent to deal with the problems of psychotechnics.¹⁹

It is only after this explanation that Feingold moves on to offer his psychotechnical solution to the problem at hand. The stakes of such a problem, he would suggest, was nothing short of life and death. Referring to the anecdote with which we began, Feingold would write, "In Richmond, Va., we are told, a death occurred from the dispensing of 'lysol' instead of 'laxol.'"²⁰ To determine whether or not, for example, the druggist was negligent in such a case, Feingold suggests that a psychological expert submit the jury to similar experiments as those described above in order to determine the average judgment of relative similarity between two words, names, trademarks or objects, depending on the case in question. For example, in the lysol-laxol case this would involve exposing a sequence of words of varying similarity to each jury at regulated different intervals and based on their ability to recognize subtle degrees of difference a general scale of similarity could then be calculated. In other words, if in a sequence of drug names exposed to each juror two names were confused more frequently than any other, than those two words would be calculated as having a higher statistical degree of similarity than any other compared pairs. Using the list below of such deceptively similar drug names Feingold found in his own experiments that Acetin and Acetone (1-2), for example, were 84%

¹⁹ Gustave A. Feingold, "Recognition and Discrimination," Ph.D. Dissertation, Department of Philosophy, Harvard University (1914): 220-221.

²⁰ Ibid. 232.

similar, Alcotine and Alcotone (4-5) 87% similar and Cerebrin and Cerebrine (18-19) 94% similar.²¹

(1) Acetin	(6) Analgesin	(11) Benzine	(16) Cerebine
(2) Aceton	(7) Analgine	(12) Benzene	(17) Cerebene
(3) Acetone	(8) Apinol	(13) Benzoin	(18) Cerebrin
(4) Alcotine	(9) Apetol	(14) Camphen	(19) Cerebrine
(5) Alcotone			

Although Feingold conceded that it was for the court or lawmakers to determine where to set the legal threshold for similarity, he argued that such decisions should involve such psychotechnical methods capable of expressing similarity in quantitative terms. Whether carried out "in the presence of the court or in the question laboratory," he would write, "Nothing but a psychological test on recognition can determine the amount of confusion that two objects possess for the average human consciousness."²²

THE JOB MARKET

In hindsight, there may have been a reason why Münsterberg assigned the trademark problem to Feingold. When Feingold completed his dissertation he was one of many graduate students searching for an academic appointments in psychology. However, by 1915 the great boom in psychological laboratories had passed while the number of psychology Ph.D.'s continued to increase. One consequence of this crowded job market was that psychologists were forced to search for opportunities elsewhere. Within the academy the greatest opportunities for psychologists were in the various iterations of the school of education (Department of Pedagogy and Psychology, Teachers

²¹ Gustave A. Feingold, "Recognition and Discrimination," *Psychological Monographs* 18, no. 2 (February 1915): 116.

²² *Ibid.*, 231.

College, Department of Education, etc.). Next in line were the normal schools, many of which created channels for cross-employment with more established colleges and universities. Some students from Harvard and Hopkins also found short-term fellowships at Nela Laboratory in Cleveland.

In a letter to G. Stanley Hall, Münsterberg expressed his concern over rumors that his former student had become ostracized at Clark's Psychological Laboratory. Münsterberg's concern was that due to his "descent" his shot at landing an academic appointment was already slim and were the rumors true then he felt obliged to warn Feingold. On the other hand, he told Hall, "the movement toward economic psychology seems to grow rapidly, and there is an increasing demand for welltrained psychologists who specialize on practical tests. There at least he would not have to fight with prejudices."²³

In a letter to another psychologist at Clark, Münsterberg would write:

As long as I have known him I have warned him against the career of an academic teacher of psychology. I urged and urged him year after year to go into more practical positions where he would find less prejudice counting against him. I urged him to become a physician or a journalist or at least to link his psychology with practical industrial and commercial affairs. I did so all the time, because I remember the tremendous difficulties which other Russian Jews found in seeking positions.²⁴

Historian of psychology Michael Pettit, in his recent book on deception, has rightly pointed out in reference to Feingold's work that Münsterberg's laboratory in this period had become an important producer of "psychotechnical surrogates for legal

²³ Hugo Münsterberg to G. Stanley Hall, 1 March 1916, Graduate Student Correspondence, B1-6-5, Box 38, G. Stanley Hall Collection, Clark University, Archives and Special Collections, Worcester, Massachusetts.

²⁴ Hugo Münsterberg to John Wallace Baird, 19 May 1916. Mss. Acc. 2285 (2), HM-BPL.

common sense." Building on Pettit's observations I have tried to add new dimensions to this story by illustrating the somewhat more complicated boundaries and motivations for entering upon such work. Feingold, for example, represented a growing demographic in Münsterberg's laboratory whose academic ambitions were either checked by the constricted job market or limited by an array of social and ethnic prejudices. Applied psychology, in this context, was often pragmatically encouraged for this reason to open up new occupational opportunities for Münsterberg's students.

At the same time, as new problems relating to advertising and industry were undertaken in the psychological laboratory, Münsterberg himself became increasingly vulnerable to attacks for taking money from industry that biased his research. Although some scholars have given credence to this claim, most evidence suggests that such accusations were politically motivated. This is most obvious in the case of the money Münsterberg raised from the German Brewer's Association that coincided with articles he had published in popular magazines opposing the prohibition movement. A teetotaler himself, Münsterberg argued that moderate consumption of alcohol was hardly a moral danger as the prohibitionists asserted, and in fact was for many workers an effective aid to reducing stress. These opinions, to be sure, were not based on research done in the Harvard Psychological Laboratory, rather based on previous research on the subject as well as ongoing research at the Carnegie Nutrition Laboratory. While his colleague, Herbert Langfeld was involved in this investigation, neither Münsterberg or Harvard had any direct involvement, financial or otherwise, in this investigation.

The rumors, however, were most likely stirred by the clever advertisements circulated by the German-American brewing industry that misleadingly quoted Münsterberg as defending the health benefits of alcohol. Such appropriation of

Münsterberg's name in advertising was indeed a serious problem. In fact, it was the original student assigned to the trademark problem in the Harvard Psychological Laboratory who was perhaps the worst offender. Frederick W. Foote, quoted in the *New York Times* article from 1911, had relocated to Chicago where by 1913 he began running ads in magazines like *Popular Mechanics* for a series of self-help books under the auspices of the Institut of Menti-Culture. Beneath Foote's portrait the ad copy read that the psychologist had been a student of the eminent Professor Hugo Münsterberg. When letters began arriving at Harvard inquiring about the extent of Münsterberg's relationship with Foote he wrote to President Lowell to see if this misuse of his name could be quashed. "The impression is, of course, that Harvard offers instruction in this kind of humbug. I know that this type of pseudo-psychology is very profitable."²⁵

²⁵ Hugo Münsterberg to A. L. Lowell, 7 January 1914. Box 39, Folder 1289. Records of the President of Harvard University, Abbott Lawrence Lowell, 1909-1933, UAI 5.160x. Harvard University Archives, Harvard University.

THE VOCATION BUREAU & EMPLOYMENT OFFICE

In 1898, the Boston lawyer and social reformer Frank Parsons delivered a lecture on "The Ideal City." This lecture would become the intellectual cornerstone of the vocational guidance movement. As one of the founders of the Breadwinners College, a night school run out of the Civic Service House in the North End of Boston, Parsons was asked to give the commencement address in 1906. After his address on the theme "choice of a vocation...a number of young men asked for personal interviews," he recalled, and so successful were these consultations that plans for a Vocation Bureau were drawn up without delay.¹ Pauline Agassiz Shaw, soon-to-be widow of the wealthy Boston Brahmin Quincy A. Shaw, was more than eager to finance the endeavor.

Under the motto of "Light, Information, Inspiration, Cooperation," the Vocation Bureau formally opened its doors on January 13, 1908. In less than six months over eighty individual consultations were carried out in their offices and an additional forty by mail. According to Parsons, the applicants ranged in age from 15 to 72 and included everyone from Harvard and Dartmouth seniors and recent college grads to businessmen, bankers and salesmen looking for a fresh start. While the target audience was local high school students, the counseling service was free to all those interested, and referrals were accepted from numerous local organizations such as the YMCA.

According to the Parsonian model vocational guidance broke down into three phases. The first step was careful self-analysis and the collection of "personal data." Most

¹ Frank Parsons, "The Vocation Bureau," *The Arena* 40, no. 224 (July 1908): 3-16.

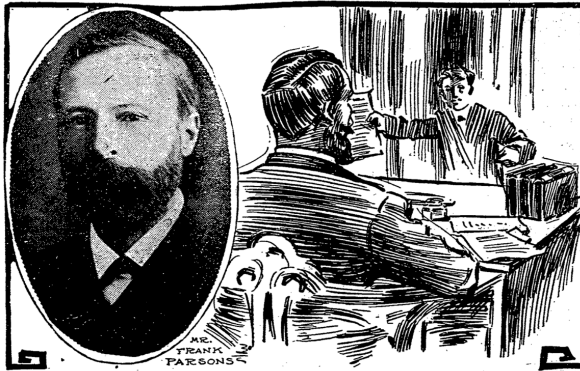
people, he believed, never took the time to introspect and take inventory of their innate aptitudes and limitations. That said, self-assessment was not the same as soul-searching; it was insight through outward comparison and self-judgment based on social norms. How do I size up to my classmates? Am I as quick at arithmetic as my friends? "Watch the people you admire," Parsons counseled, "note their conduct, conversation, and appearance, and how they differ from people you do not admire."² To guide one through this process there were two standard forms. Part One included 146 questions about ones' interests, strengths, weaknesses and so on. Part Two involved a deep analysis of ones' appearance, self-presentation, racial physiognomy and phrenological features. The counselor would then suggest the applicant ask for frank characterizations by friends and family fully aware of the inherent prejudices of their varying perspectives.

In most cases Parsons believed that counselors only needed fifteen minutes to offer sound advice, in other cases a longer follow-up interview was necessary. In essence this was the counselor's chance to "read between the lines," judge the validity of their personal data, make corrections to it and add observations of their own. Augmenting these intuitive judgments, Parsons also encouraged the physical examination of vision and hearing as well as an array of psycho-physiological tests corresponding to the physical and intellectual requirements of various occupations. For the applicant interested in dentistry, for example, testing acuity of eyesight and delicacy of hand were recommended. Or if an applicant performed poorly on a test of verbal memory and showed weakness of hearing, a career in stenography was not to be advised. Such tests, however, never seem to have been implemented. As discussed shortly, Parsons passed away less than a year after the

² Frank Parsons, *Choosing a Vocation* (Boston: Houghton Mifflin Company, 1909): 6.

Vocation Bureau opened and his predecessors were far less welcoming to the prospect of psychological testing in the Bureau.

FACING PROF. PARSONS WITH "LIFE CARD"



An Applicant to the Vocation Bureau is First Given a List of Questions Dealing with Every Incident in His Life and His Characteristics. After This a Personal Consultation with Prof. Parsons Follows.

FINDING OUT ABOUT YOURSELF

The following schedule of personal data is used in many cases as part of the process of self-investigation and self-revelation. The answers the young man makes to these questions afford much light on the problem under consideration, not only by their direct relations to it, but indirectly also, for the counsellors can read between the lines a great deal about the accuracy, clearness, directness and definiteness of thought, care, thoroughness, modesty or conceit, mental makeup and social characteristics of the young man's character and ability. In addition to the schedule study, the counsellor puts whatever questions and makes whatever tests the case may call for on the general principle already stated. The manual which is being prepared for the use of associate counsellors contains already more than twice as many points as appear in the schedule for the use of applicants.

	Date
1	Name
2	Address
3	Where born and brought up
4	Family, number, ages
5	Business or occupation of father, brothers, uncles and other relatives
6	Health, etc.
7	Do you live at home
8	Ancestors, occupations, resources
9	Physique, health
10	Length of life, any hereditary diseases
11	Characteristics
12	Your age
13	Height
14	Weight
15	Health
16	Sickness record
17	Strength
18	Endurance
19	Habits as to fresh air
20	Exercise, bathing, etc.
21	Habits as to smoking
22	Drinking, use of drugs, etc.
23	Education and training
24	General education
25	In school, what schools
26	Best records in what studies—prizes
27	Poorest records, in what
28	Out of school, by
29	Reading, what, how, results
30	Favorite books
31	Favorite authors
32	Teaching
33	Working
34	Association
35	Industrial education
36	What courses and when
37	Manual skill, drawing, use of tools, etc.
38	Sketching from memory (consult with counsellor about filling in this question)
39	Experience and present use of time
40	Positions held and work done, pay and length of time in each case
41	Reasons for leaving in each case
42	Attitude toward employers—confident and sympathetic or not
43	Do you watch for the bell to ring and stop as soon as it gives the signal?
44	Do you realize that wages depend largely on the efficiency and productive value of the workers?
45	Do you hope to be an employer yourself some day?
46	By what methods does advancement generally come, according to your observation?
47	Through what means do you hope to secure advancement?
48	Savings
49	How do you spend your money?
50	Most interesting or notable things in your life
51	Likes and dislikes, pictures, music, theatre, books, dogs, horses, athletics, etc.
52	Favorite amusements
53	How your evenings are spent
54	How each evening last week was spent
55	Dominant motives
56	and interests
57	Ambitions
58	What would you be and do if you could?
59	Important things you have accomplished
60	Distinguishing characteristics and attainments
61	—to be proud of

62	Distinguishing characteristics and attainments
63	—to be proud of
64	Resources
65	Relatives
66	Friends
67	Organizations you are connected with, and how
68	Appearance
69	Face, hair, color, outline
70	Dress
71	Neatness
72	Voice, inflections, etc.
73	Conversation
74	Manners
75	Smile, handshake, etc.
76	Do you know the economic and social value of a cordial smile?
77	Do you shake hands like a steam engine, a stick, or an icicle, or like a sensible human being and warm-hearted friend?
78	Mind
79	Power of observation
80	Memory
81	Reason
82	Imagination
83	Inventiveness
84	Thoughtfulness
85	Quickness or slowness
86	Knowledge
87	of self, motives, abilities, weaknesses, etc.
88	of human nature
89	of business and industry
90	of laws and causes
91	of things, countries, cities, industries
92	of books, science, history, biography, fiction, essays, poetry, humor, nature books, law. Mark the classes of books you are most familiar with
93	of art, music, sculpture
94	Character (see also habits above)
95	Care
96	Thoroughness, efficiency
97	Enthusiasm
98	Reliability, truth, honesty, etc.
99	Frugality
100	Industry
101	Method
102	Open-mindedness or intolerance and dogmatism
103	Progressiveness and initiative
104	Persistence
105	Common sense, reasonableness
106	Courtesy, or boorishness, or negative attitude toward others
107	Tact
108	Taste
109	General disposition
110	Obedient or disobedient
111	Moderest or egotistic and self-conceited
112	Contracious or cowardly
113	How have you acted in times of danger or when suffering from pain, loss or disappointment
114	Generous or avaricious
115	Optimistic or pessimistic
116	Boysant or despondent
117	Altruistic or mean and selfish
118	Co-operative or aggressive and despotic
119	Firm and steadfast or yielding and vacillating
120	Will power
121	Self-will, stubbornness, etc.
122	Humor
123	Good fellowship
124	Public spirit
125	Ideals
126	Friends
127	Environment
128	What places have you lived in
129	If town or cities, give street and number in each case
130	Dates also if possible, or your age as nearly as you can in each place
131	Describe the neighborhoods in each residence
132	Trees, grass, flowers, water, scenery?
133	Class of people you were living among in each case
134	What were their amusements?
135	What did they work at?
136	Did you mingle with them freely? As one of them?
137	If not, what were your relations with them and your attitude toward them?
138	What kind of life did they lead?
139	Reasons for your choice in each case
140	Why?
141	What sort of people do you prefer to live with now?
142	Why?
143	What effect do you think your location and environment have had on your ideas and ambitions, habits of thought and special opportunities and adaptability?

Figure 4.1: "Vocation Bureau Giving Aid to All," *The Boston Sunday Herald* (May 31, 1908),

To aid in the applicant-counselor dialogue standard descriptions of the requirements of various professions were drawn up by the Bureau and made available free of charge. These informational pamphlets were also used by the counselor to compare the occupational data provided against the applicant's self-analysis. Between visits applicants were also encouraged to familiarize themselves with recommended literature like Fowler's *Starting in Life* as well as make visits to various work sites in order to directly observe the nature of different lines of work.³ The counselor would also provide detailed labor statistics culled from the census in order to assess the comparative advantage of entering a given field in light of the geographic distribution of employment opportunities.

Like Parsons, Münsterberg believed that the mismatch between man and occupation not only resulted in individual unhappiness but social inefficiency on a national scale. Moreover, in theory he also agreed with Parsons that vocational guidance might offer a practical solution to this problem. What Münsterberg objected to however were the crude methods employed by the growing community of vocational counselors.

His first point of contention was the collection of personal data used by the counselors to begin the guidance process. "Such self-analysis," Münsterberg argued, was "very difficult and, above all, very easily misleading."⁴ As discussed in chapter one, introspection, after all was only reliable when undertaken by trained psychologists, preferably in the context of a laboratory. That said Münsterberg distrusted the self-

³ Nathaniel C. Fowler, *Starting in Life: What Each Calling Offers Ambitious Boys and Young Men* (Boston: Little, Brown, and Company, 1906).

⁴ Hugo Münsterberg, "Finding a Life Work," *McClure's Magazine* 24, no. 4 (February 1910): 398-403.

reporting of the applicant no less than the vocational counselors. As discussed above, in Parsons' outline of the vocational guidance method the counselor was to read between the lines and adjust the "data" according to their own impression of the applicant. However, as the counselor, according to Münsterberg, was no better equipped to make sound psychological judgments than the applicant, the whole assessment process was a cyclical stalemate.

"If we are to have reliable answers," Münsterberg insisted, "we must make use of the available resources of the psychological laboratory." These resources alone, he insisted, "emancipate us from the illusions and emotions of the self-observer." However, simply identifying the applicant's personal equation was not commensurate with offering career advice. Equally important was the psychological analysis of the various occupations in order to "determine which particular mental activities are needed for special lines of life work."⁵ Only by comparing the psychological portrait to the matrix of mental and physical requirements for each occupation, could the counselor hope to help the applicant find their true vocational path.

As an illustration of the need for psychological expertise in vocational guidance Münsterberg offered the example of the millworker responsible for keeping a watchful eye over the shuttles of a power loom. As such a job requires long stretches of visual attention, everything depends upon the worker's ability to maintain focus. Moreover, as different factory conditions make different demands on the worker's attention, a successful worker in a small mill may find himself woefully ill equipped for work in a large factory where distractions are multiplied. As "the psychological laboratory can test these individual differences of attention by a few careful experiments," Münsterberg suggests that it ought

⁵ Ibid.

to fall on the psychologist to help the worker determine which type of factory best suits their attention type.⁶ As was often the case in Münsterberg's popular articles, his examples were allusions to ongoing experiments in the Harvard Psychological Laboratory. Shortly after he described the potential for experimentally determining "attention types," the problem was assigned to a student for further investigation.⁷

Although Parsons had been receptive to the idea of allying the Vocation Bureau with the Psychological Laboratory, his death on September 26, 1908, put an abrupt end to that possibility. With Meyer Bloomfield as the new Bureau Director and Paul Hanus as Chairman of the Executive Committee, Münsterberg's condescending tone towards the "dilletantistic" vocational counselor was not taken lightly. In the case of Hanus, there was also a history of conflict between the two men. When Hanus was appointed Professor of the History and Art of Education in 1891, he quickly found himself marginalized within the Philosophical Division. Particularly threatening was Münsterberg and his cadre of psychology graduate students who tended to look down on education as a less than serious subject within the division.

In 1899, while Münsterberg was Chairman of the Philosophical Division he would butt heads with Hanus over coursework requirements. Münsterberg's basic concern was that educational courses were being targeted by undergrads as an "easy pass."⁸ Hanus showed little restraint in phrasing his response. "[S]ince you really know nothing about what work students do in my courses you have reached a wrong conclusion

⁶ Ibid.

⁷ H. C. McComas, "Some Types of Attention," *The Psychological Monographs* 13, no. 3 (May 1911): 1-58.

⁸ Hugo Münsterberg to P. H. Hanus, 22 March 1899, Paul Henry Hanus Papers, HUG 4447.5.5, Correspondence Chronological File, 1891-1902, Harvard University Archives.

because you lack the data...[further] you make the mistake of persistently assuming that students elect my courses not, primarily, because they wish to pursue a favorite subject, but because they don't want to work. This absurd assumption is unjust both to them and to me."⁹

The conflict between Hanus and Münsterberg in the 1890s is important because it presaged the later debate between psychologists and vocational counselors. As with the professional educator, psychologists asserted themselves as the final authority in critical questions involving the mind. However, unlike educators who for the most part eagerly sought out psychological advice, for the nascent profession of vocational counseling, the psychologist appeared to more directly encroach on their turf. Münsterberg certainly did not help this perception by announcing in a lecture at Radcliffe in 1909 that "a psychologist of worth should be at the head of such an organization."¹⁰

Whereas Hanus and Münsterberg avoided public confrontation, Parsons' successor Meyer Bloomfield had no qualms about attacking his senior colleague from across the Charles. In an interview with H. Addington Bruce, Bloomfield would state that it would be a grave mistake to turn the Vocation Bureau's "consulting-rooms into clinics and psychological laboratory."¹¹ "[If] we were to attempt to test boys and girls the way Professor Münsterberg suggests," he would go on to say, "their parents would at once leap to the conclusion that we thought there was something the matter with them, and that

⁹ P. H. Hanus to H. Münsterberg, 24 March 1899, Paul Henry Hanus Papers, HUG 4447.5.5, Correspondence Chronological File, 1891-1902, Harvard University Archives.

¹⁰ *The Cambridge Tribune*, "Professor Munsterberg at Radcliffe," November 27, 1909: 10.

¹¹ H. Addington Bruce, "Psychology and Business," *The Outlook* 99, no. 1 (September 1911): 32-36.

would be the last we should see of them. People, as you know, are extremely suspicious of things they do not understand, and psychology is a sealed book to most laymen."¹²

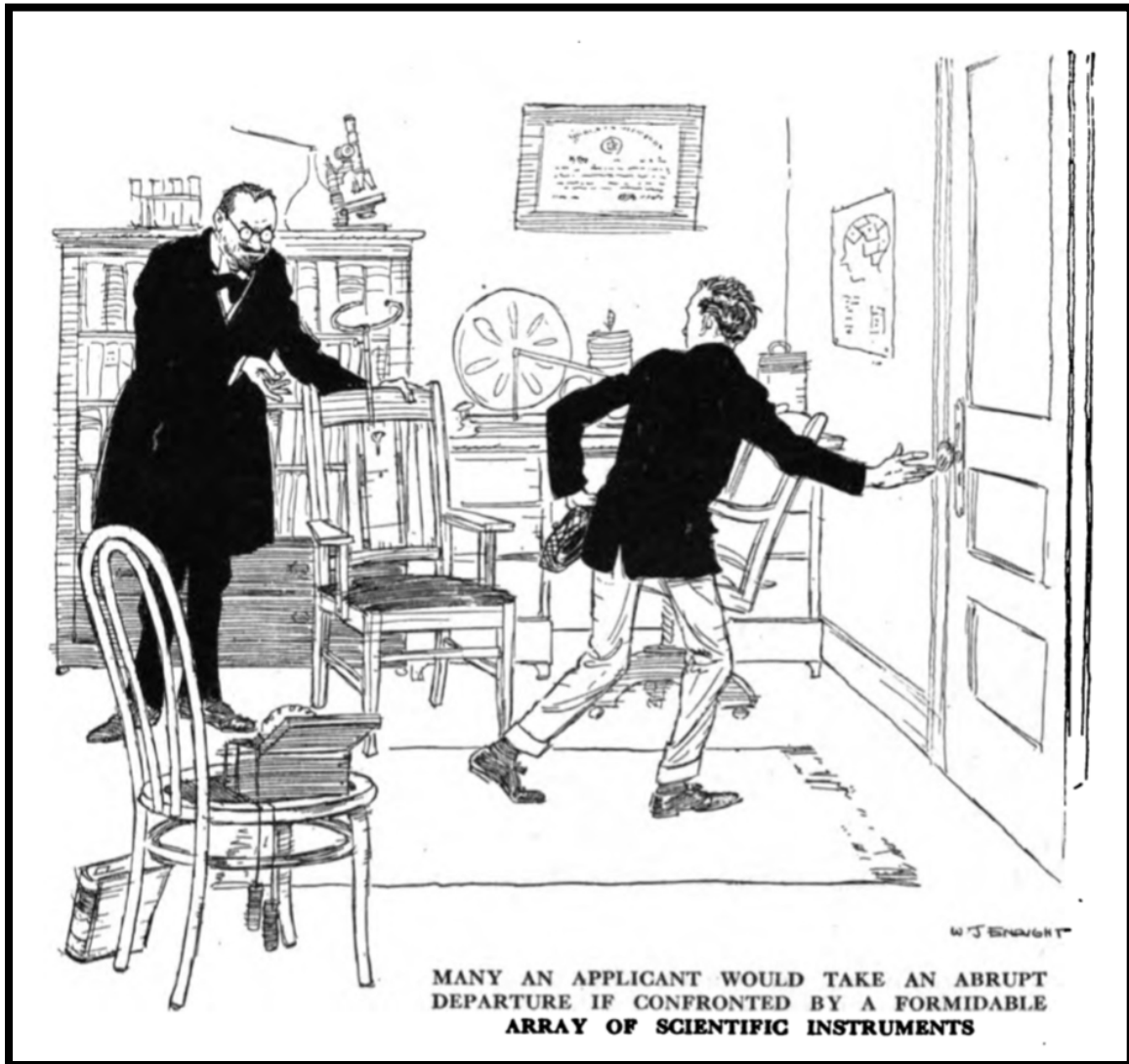


Figure 4.2: Bruce, H. Addington. "Choosing a Career." *The Metropolitan* (July 1913): 42-44.

Bloomfield, evidently, was unaware of where his interviewer's sympathies laid as Bruce quickly wrote off the idea that a few pieces of apparatus would create a threatening ambiance for the counselee. "Many of the most helpful tests may be made by the use of

¹² Ibid., 35.

simple devices" Bruce rebutted, "and whatever instruments are required may be concealed behind screens."¹³ In the above illustration (figure 4.2) note the humorous depiction of the fearful applicant fleeing the vocational inquisitor. The counselor-psychologist standing ominously behind a chair with calipers clamped to the backrest gestures to his client to take a seat. On top of the bookshelf and desk in the background we is a miscellaneous array of scientific paraphernalia ranging from a test tube rack and microscope to what appears to be a color wheel. A phrenological chart hangs on the wall to the left of the door contrasting with the framed diploma hanging prominently over the desk. The juxtaposition suggests the fragility of trust in an age of experts as well as the popular conflation of applied psychology as coterminous with phrenology.

Bloomfield's campaign to keep psychological expertise at bay was motivated as much by the humanistic fear that unemployed advice-seekers would suffer under the scientifico-clinical gaze as by professional territorialism. In Münsterberg's view, under Bloomfield's leadership the psychological expert had been "crowded out" of the Vocation Bureau just as quickly as Parson's had invited them in.¹⁴ For this reason, he retreated to Emerson Hall where he focused on a related problem, vocational selection. Whereas the aim of vocational guidance was to help youth find their true calling, vocational selection adopted the employer and manager's point of view. Here the question was not how to guide job seekers onto the right vocational path, but how to select the 'best man for the job' and eliminate vocational misfits from the workplace.

¹³ H. Addington Bruce, "Choosing a Career," *The Metropolitan*, July 1913: 42-44.

¹⁴ Hugo Münsterberg, *Business Psychology* (Chicago: La Salle Extension University, 1915): 215.

SQUARE PEGS AND ROUND HOLES

One of the earliest vocational tests Münsterberg developed was his psychological test for the selection of sailors. The idea for this test was a direct consequence of the popular writings of the aforementioned H. Addington Bruce. In his 1911 book *Scientific Mental Healing*, Bruce outlined in a chapter entitled "Psychology and Everyday Life" a number of notable achievements in the fledgling field of applied psychology. Alongside Lightner Witmer's pioneer psychological clinic and Walter Dill Scott's groundbreaking book on *The Psychology of Advertising* (1908), Bruce gave especial attention to Münsterberg and the Harvard Psychological Laboratory where he reported on experimental investigations into trademark infringement and a possible test for chauffeurs. After reading this book Emil Leopold Boas, Director of the Hamburg-American Line wrote Münsterberg directly to see if his laboratory might be of service in the selection of sailors.

Ich las kürzlich in H. Addinton Bruce's "Scientific Mental Healing", dass in psychologischen Laboratorien sich Instrumenten befinden, mit denen "rapidity of reaction, accuracy of perception, quickness of decision", also in anderen Worten schnelles und genaues Denken und Handeln, ohne Schwierigkeit festgestellt werden können. Würden Sie wohl die Liebenswürdigkeit haben, mir mitzuteilen, ob solche Instrumente ohne allzu grosse Schwierigikeit angeschafft und von Leuten, die mehr oder weniger Laien sind, benutzt werden können. Mir schwebt dabei vor, eventuell Schiffsangestellte in solcher Weise zu prüfen.¹⁵

As with the work in the Vocation Bureau, Münsterberg was uncomfortable with the idea of psychological testing and instruments falling into in untrained hands, so he took it upon himself to design a simple test that could safely be used by carefully following his instructions. On December 12, 1911, Münsterberg wrote Boas to share the

¹⁵ Emil L. Boas to Hugo Münsterberg, (October 18, 1911), HM-BPL, Mss. Acc. 1567.

psychotechnical test he had developed. "After long trials and after experiments with more or less complicated arrangements" he told Boas, "I have finally decided in favor of a device which is externally simple and yet which allows an exact study of all the features involved."¹⁶ The device was a deck of twenty-four cards and on each card there were printed four rows of vowels (A, E, O, U). At the examiner's signal (Münsterberg suggested "Now!"), the test taker was to sort the entire deck into four stacks according to the predominant vowel appearing on the face of each card. Performance was graded by the amount of time taken multiplied by ten and divided by the number of mistakes. After countless trials with numerous subjects Münsterberg maintained that the "results show that those various mental traits which have been observed in the practical ship service come clearly to light under the conditions of this experiment."¹⁷ Moreover, as the "device" was merely a pack of cards, the test had the advantage of mobility, reproducibility, and easy administration by personnel officers without prior psychological knowledge.

Writing in the *Unpopular Review*, B. B. Breese singled out precisely this test as the height of psychological absurdity. "A man seated at a table in a psychological laboratory sorting cards" Breese mocked Münsterberg, "can hardly be thought of as being stimulated to action in the same way as he would be if he were in command of a ship with all the responsibility which such a command involves."¹⁸ Moreover, after administering the test to a classroom of twenty male and twenty female college students of his own he

¹⁶ Hugo Münsterberg to Emil L. Boas (December 12, 1911), HM-BPL, Mss. Acc. 2291.

¹⁷ Hugo Münsterberg, *Psychology and Industrial Efficiency* (Boston: Houghton Mifflin Company, 1913): 88.

¹⁸ B. B. Breese, "Vocational Guidance," *The Unpopular Review* 5 (1915): 351.

believed he had found irrefutable evidence that Münsterberg's method was flawed.

"According to the test," he began,

girls are much better fitted for sea-captains than boys. This is an illustration of the need of scientific vocational guidance, and also an instance of how little we can depend upon common sense in such matters! For hundred of years we have, in our ignorance, been putting mind in command of our ships, when women could have done the job much better.¹⁹

On the heels of his work with the Hamburg-American Line, Münsterberg was next presented with another opportunity to work with the American Telephone & Telegraph Company (AT&T).²⁰ By 1912 AT&T employed more than twenty-three thousand women as switchboard operators. After a three-month paid training period company managers observed that frequently their operators prematurely resigned resulting in significant financial losses. Therefore the psychotechnical problem at hand was to develop an aptitude test for telephone operators that would aid in the AT&T employment managers in selecting workers and reducing costly labor turnover.²¹

The first step in the investigation was to observe the switchboard operators at the Cambridge Central dispatch in order to determine the essential psycho-physical factors order to determine the essential psycho-physical factors involved.²² At the close of this observational period, Münsterberg decided that rather than to "reproduce the activity at the switchboard in the experiment...it would be more desirable to resolve that whole function into its elements and to undertake the experimental tests of a whole series of

¹⁹ Ibid., 352.

²⁰ David Noble has pointed out that AT&T was one of the earliest American corporations to make space in their managerial toolbox for applied psychology. David F. Noble, *America by Design: Science, Technology, and the Rise of Corporate Capitalism* (New York: Alfred A. Knopf, 1979): 296.

²¹ Hugo Münsterberg, *Psychology and Industrial Efficiency* (Boston: Houghton Mifflin Company, 1913): 99-100.

²² *Telephony*, "Interesting Psychological Study of Telephone Girl," August 3, 1912: 144.

mental dispositions."²³ Through a selection of memory, attention, intelligences, and motor-coordination tests, Münsterberg's hoped to institute a psychological system to reliably predict the aptitude of the applicant for switchboard work. In the attention test, for example, a classroom of thirty women were each handed a page from that morning's newspaper—the idea being that the content of that day's news would distract them from the task at hand. At the experimenter's signal the women would be given six minutes to cross out, column by column, every "a" on the page. By examining how many letters were crossed out, overlooked, and the general distribution of the marks, individual differences could be discerned.²⁴ As discussed in the section that follows, it was this method of employing a battery of tests that Münsterberg would further develop in connection with the American Tobacco Company.

STEP UP AND LET PSYCHOLOGY SELECT A VOCATION FOR YOU



Figure 4.3: "Step Up and Let Psychology Select a Vocation For You," *The New York Tribune*, April 27, 1913.

²³ Hugo Münsterberg, *Psychology and Industrial Efficiency* (Boston: Houghton Mifflin Company, 1913): 100.

²⁴ *Ibid.*, 101-102.



Figure 4.4: *Boston Herald* (November 5, 1914): 13.

On November 5, 1914, a wanted ad appeared in *The Boston Herald* seeking fifteen and twenty salesmen. The all caps listing read: "A real opportunity for ambitious young men not afraid to work." One hundred hopeful applicants arrived at 34 Merchants Row the next day for what turned out to be a traveling salesman position with the American Tobacco Company. In the initial "sizing up" of the candidates the tobacco company reps considered factors such as physical appearance (i.e. physiognomy), sales experience, special skills, hygiene and habits. Smoking, naturally, was not counted among those "bad habits" worthy of consideration.²⁵ Based on these collected details and observations more

²⁵ "Candidates addicted to the use of cigarettes had no black mark chalked against them. It mattered not whether they consumed one or a dozen packages a day. But as one of the American Tobacco Company representatives explained, cigarette smoking is not such a bad habit after all." "Munsterberg Bars 13 of 28 Job Seekers," *The Boston Herald*, November 1914: 1.

than half the applicant pool was promptly eliminated while those remaining moved on to round two.

The rejected, however, were not without their consolation prize as the next morning while paging through to the wanted section an unusual headline may have caught their eye: "Munsterberg to Pick Salesmen by Psychology, Laboratory Tests are to be Made." "The tests that will count the most at examination today," the *Boston Journal* reported, "will be the facts caught by impersonal instruments...carefully recorded in a strictly scientific way."²⁶ The postmortem in the *Boston Herald* several days later would offer further solace in its description of "The stout-hearted 28 who journeyed Harvardward with smiling confidence after they withstood the looking-over process at the company's office in Merchant's row, were not quite so nonchalant after they had been put through the 'mill' by Prof. Muensterberg." To which the journalist added with a hint of *schadenfreude*, "those who had fallen seemed quite dazed when they once more reached the sunshine, and were able again to breathe the air of freedom."²⁷

Candidates arrived at Emerson Hall and one by one were escorted to Münsterberg's office in Room 14. As on Merchants Row, Münsterberg questioned each candidate as to name, age, occupation, etc., and administered an eye exam. He would then ask "What kind of a man are you?" According to one newspaper report this question typically baffled the candidates at which point the professor would elaborate his meaning in terms of temperament, interests, etc., followed by inquiry into habits such as drink and smoking.

²⁶ "Munsterberg to Pick Salesmen by Psychology," *The Boston Journal*, November 1914: 12.

²⁷ "Munsterberg Bars 13 of 28 Job Seekers," *The Boston Herald*, November 1914: 1. The precise number of candidates tested in Emerson Hall varies between accounts ranging from 27 to 35.

Following the physical exam and interview the applicants were moved up to a large classroom on the fourth floor. The first of these tests that were done as a group assessed general memory and recall. Here a text would be read and the subject asked to reproduce the text read to them in writing as best they could. The story was roughly three paragraphs about a forest fire. Results were ranked by details reproduced, quantity of false statements and the narrative sequence of details in relation to the original. A second memory test involved memory for random number sequences.

Next was the cancellation test. Subjects were given a copy of that morning's *Boston Herald*. For each column they were given one minute to cross out as many *r's* as possible while a lab assistant kept time. The front page of that day's news was chosen because it presented the greatest possible distraction. Each column was then counted up for how many *r's* were crossed out and how many omitted. This data could be examined in a number of ways. For example, when the number of omissions significantly increased from column one to the final eighth column, it would be indicative of fatiguing attention. More importantly, for selection purposes was the comparative assessment and ranking between applicants.

Like rats in a maze the candidates were next escorted up to the fourth floor where Robert Yerkes maintained his laboratory for animal psychology. Led one by one by a student guide through five separate rooms the job candidates were guided through a battery of psychological tests. One, for example, required the subject to stand facing a suspended plate of glass opposite a psychologist holding a rubber-tip hammer. Instructing the man to resist the instinct to flinch, the psychologist would then proceed to strike the

plate of glass. The goal of the test was to assess one's control of "instinctive impulses," that is, the ability to keep a straight face under stress.²⁸

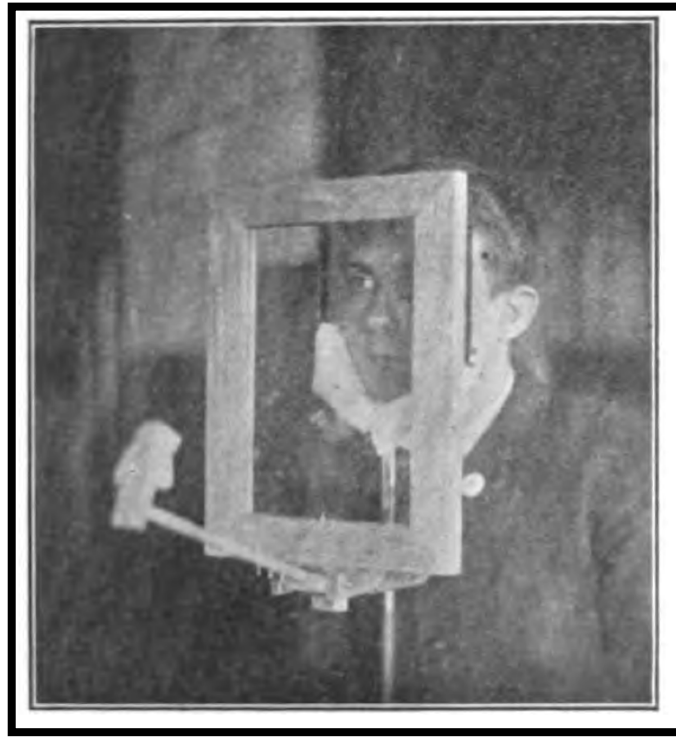


Figure 4.5: B. T. Baldwin, "The Psychology of Mental Deficiency." *Popular Science Monthly* 79 (July-Dec. 1911): 82-94.

In another test, subjects peered into a tachistoscope, an instrument for displaying visual stimuli at precise intervals, where they observed a pattern of interwoven shapes briefly flashed upon a screen. By recalling each geometric form in its correct orientation, attention and memory were gauged. After nine hours of testing Münsterberg calculated the results and recommended the top ten candidates for the traveling salesman position. In "The Man-Screen," Richard Washburn Child's account of the tests for *Cosmopolitan*, the title evokes the image of a sieve, filtering out vocational misfits like pebbles collecting in a fine-mesh screen. The accompanying image, however, tells a somewhat different

²⁸ Hugo Münsterberg, *Business Psychology* (Chicago: La Salle Extension University, 1915): 286.

story. The gowned professor, holding his magnifying glass up to a row of miniature candidates, analyzes their features like the naturalist with his specimens. To screen candidates here thus implies both a positive and negative process, that is, both weeding out misfits and identifying aptitudes for various occupations. However, as I show in the following chapter, vocational screening was also closely connected with Münsterberg later work on the silver screen in connection with Paramount Pictures.

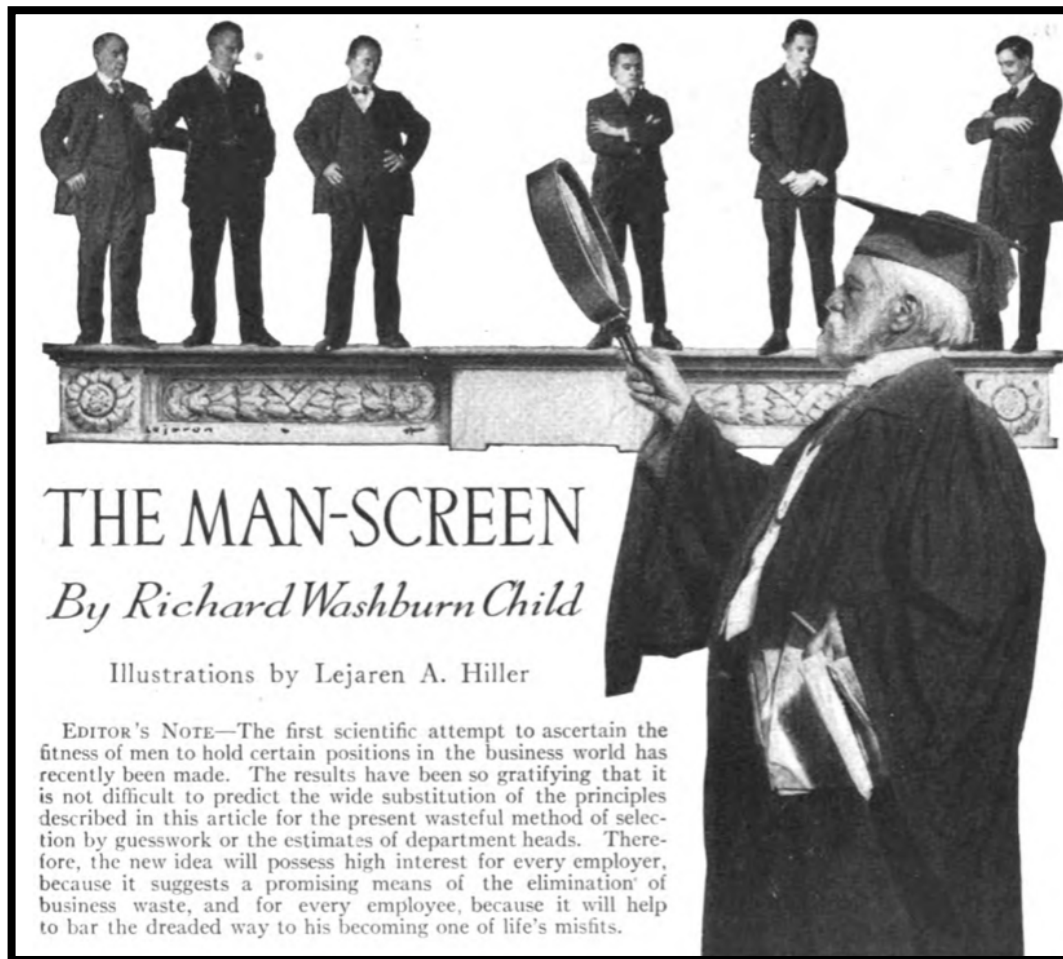


Figure 4.6: Child, Richard Washburn. "The Man-Screen." *Cosmopolitan Magazine* 58, no. 6 (May 1915): 647-649.

THE CINEMA

TESTS FOR CAR DRIVING
CERTAIN NATURAL QUALITIES ARE NECESSARY FOR SUCCESS AND
SAFETY

...In the test for chauffeurs at Harvard the subject is placed in an automobile in a hall equipped for this purpose. He is seated in the machine, which has its wheels raised from the ground so that while all the machinery can be set in action the auto will not budge. The experiments are conducted in a darkened room. In front of the machine is a white wall, on which moving pictures of great size are thrown. They are immediately before the chauffeur's eyes. A light is thrown on the chauffeur's hands and the steering machinery of the automobile, so that the professor can watch everything that the subject does. The chauffeur is told to act as he would do in real life if he saw any of the things that appear before him on the screen... A tiny child is shown with startling realism, tottering across the auto road in front of the auto by means of the moving picture. The chauffer is required to hand this machine without an instant's loss of time, as he would do if this emergency occurred in real life.¹

The above scene describing a moving picture simulation test for chauffeurs was first reported in the *Automobile Dealer and Repairer* in January 1911. Like a bad game of telephone, as the story traveled from paper to paper it evolved in unusual ways.² By 1913 the *New York Tribune* was reporting on Professor Münsterberg's latest invention, "the cinematograph nerve test," an immersive machine for testing the vocational fitness of chauffeurs, pilots, or "other men in charge of passenger and traffic conveyances."³ At this point Münsterberg had had enough. In published letter to the editor of the *New York Times*

¹ "Tests for Car Driving," *Automobile Dealer and Repairer*, January 1911: 72.

² "Force Chauffeurs to Undergo Tests. Harvard University Employes Psychological Methods in Examing Drivers," *Cleveland Plain Dealer*, February 1912: 4; "Moving Picture Driving Test," *The Automobile Journal*, June 1912: 60; "The Chauffeur and the Cinematograph," *The Auto-Motor Journal* 17, no. 622 (December 1912): 1461-1462; Carl Holliday, "The Motion Picture Teacher," *The World's Work*, May 1913: 39-49; "More New Uses for the Movie," *The Outlook*, May 1913: 125. Ernest Alfred Dench, *Motion Picture Education* (Cincinnati: The Standard Publishing Company, 1917): 206.

³ "'Movies' as a Lifesaver," *New York Tribune*, July 1913: C8.

he would write, "this whole story is one of the many fake reports concerning my laboratory. I have never arranged any tests for chauffeurs and have never used the cinematograph in any experiment whatever."⁴

It was not uncommon for hearsay stories about Münsterberg and his laboratory to take on a life of their own. However, like good science fiction these imaginative news items often proved to be prophetic. For example, immediately after Münsterberg first described various psychological techniques that promised to discern deception, sensationalist headlines appeared in newspapers across the country such as "Machine Reads the Mind," "Machines That Tell When Witnesses Lie," and "Describes Machine to Convict Guilty."⁵ While Münsterberg would assign the deception problem to his student William Moulton Marston (among others), a polygraph apparatus, or 'lie detector' came years after it was first imagined in the press as a singular technology.⁶ In the case of the so-called "cinematograph nerve test," the most likely explanation is that it was an fanciful exaggeration of the apparatus to test chauffeurs developed by his student Charles Sherwood Ricker in 1910.⁷ Although Münsterberg may have equivocated when he said he had "never arranged...tests for chauffeurs,"⁸ it was true he had never had in his

⁴ "Denies Chauffeurs' test. Prof Muensterberg calls Fake a Story of Auto Experiment," *The New York Times*, September 1913: 16; "Muensterberg Denies 'Psychology Test'," *Automobile Topics* 31, no. 6 (September 1913): 417.

⁵ "Machine Reads Minds," *The Washington Post*, October 1907; "I Can Tell If You're a Liar! Harvard Professor with Strenuous Name Invents Machine That Will Make Him Famous," *The New York Times*, September 1907: SM8; "Describes Machine to Convict Guilty, Prof. Muensterberg Predicts Employment of Psychological Experts as Witness at Court Trials," *The Boston Herald*, March 1909: 12; "Machines That Tell When Witnesses Lie," *The San Francisco Call*, September 1907: 2.

⁶ Ken Alder, *The Lie Detectors* (Lincoln: University of Nebraska Press, 2007);

⁷ Charles S. Ricker, "Psychology and the Chauffeur," *Harvard Illustrated Monthly* 11, no. 6 (March 1910): 185-188.

⁸ By this Münsterberg may have meant that the Ricker's apparatus, while designed with testing chauffeurs in mind, had never been used on chauffeurs for actual vocational testing purposes.

laboratory the so-called "cinematograph."⁹ Strangely, shortly after his denial, *Grundzüge der Psychotechnik* would appear with a description of this moving picture test as indeed a promising experiment:

Gerade wo Verkehrssicherheit in Frage steht, drängen sich solche Vorschläge sehr natürlich auf. Man hat denn auch bereits Apparate hergestellt, welche die Bremsvorrichtungen des Automobils reproduzieren und es ermöglichen, den einzelnen zu prüfen, wieviel Tausendstel der Sekunde nötig sind, um bei plötzlich auftauchendem Hindernis zweckmäßig zu reagieren. Es wurde vorgeschlagen, sogar kinematographische Bilder als Reize dafür zu benutzen. Wer nicht eine gewisse natürliche Reaktionsfähigkeit besitzt, soll dann nicht die Lizenz also Chauffeur erhalten.¹⁰

Not unlike the lie detector, an apparatus for testing chauffeurs, taxi drivers and train conductors by motion pictures was not far off. Such psychotechnical contrivances would in fact be employed during the 1920s in France and Germany. However, while the psychotechnical application of film was new, its use for simulating experience for entertainment was not. Coincidentally it was at the St. Louis World's Fair, where Münsterberg had co-organized the International Congress of Arts and Sciences, that a retired fireman by the name of George C. Hale debuted his moving picture ride "Hale's Tours." Using point of view footage taken from a moving train, Hale's Tours audience took their seat in his stationary train as the world whizzed by on their window-screens.

When Münsterberg became interested in a problem the first step was to observe it in context or at the very least to ask professionals on site for their first hand observations.

⁹ The crucial distinction here is between the uses of projected film as part of an experiment versus the use of modified motion picture cameras to collect data during an experiment. That latter was a fairly common practice in studies of the psychology of reading reaching back to the late 1890s. The camera in these experiments was used to track eye movement as subjects read.

¹⁰ Hugo Münsterberg, *Grundzüge der Psychotechnik* (Leipzig: Verlag von Johann Ambrosius Barth, 1914): 415.

When Münsterberg became interested in legal and forensic question, he visited courtrooms. When he took an interest in Taylorism and industrial management, he toured factories. And not surprisingly, when he became interested in film, he not only went to the movies, but to the film studios.

In June 1915 Münsterberg would visit the Vitagraph studio located in Brooklyn, New York. He also began collecting photoplay writing manuals to study the techniques of the filmmaker and search for possible psychological interventions. Although he did not own a movie camera, he did take up photography around this time. In the few examples of his photographs we find in Münsterberg a true student of composition.

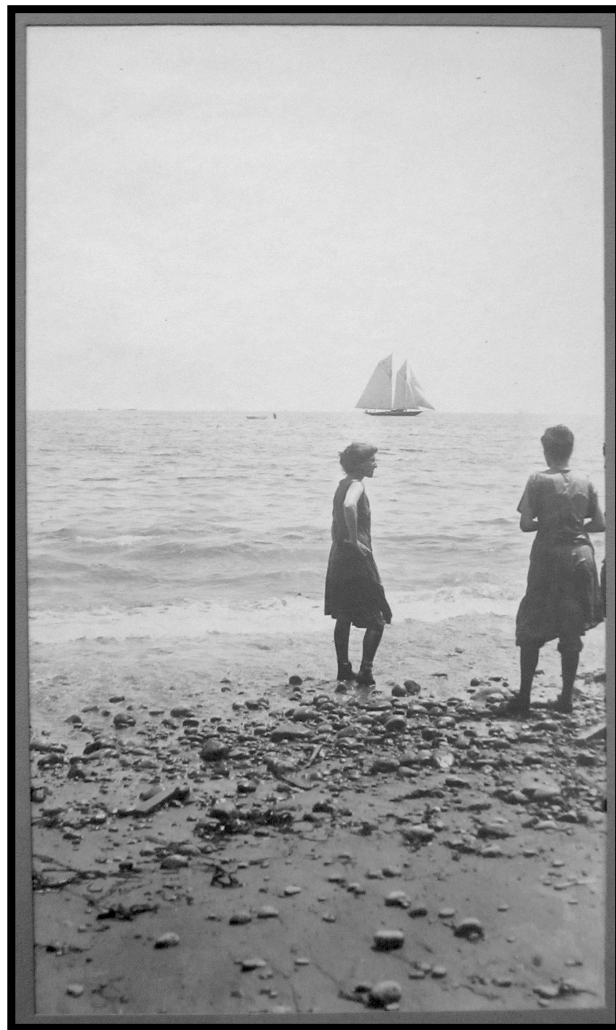


Figure 5.1: Photograph by Hugo Münsterberg
ca. 1915. Courtesy of Marjorie Munsterberg.

That Münsterberg felt the need in 1913 to deny reports of the cinematographic experiments in his laboratory may in hindsight seem surprising as only two years later he would enter a contractual relationship with Paramount Pictures. In late 1914, under the leadership of W. W. Hodkinson, the recently formed Paramount Pictures Corporation launched a campaign to attract the “better classes” to the movies.¹¹ One strategy in this multifaceted effort was to lure established talent from the world of theater and literature to write and produce “high-class” photoplays.¹² “Don’t say ‘movie’ unless you mean the kind of pictures shown at nickelodeons” read one Paramount advertisement in *The New York Times*. “The better class of photoplays shown at the best theaters to the best people are known as Paramount Pictures.”

More inventive, however, than pandering to the cultural pretensions of a growing middle class audience was their weekly “magazine on the screen” called the Paramount Pictographs, successor to the Paramount Newspictures newsreel. Launched in early February 1916, each week Paramount advertised a new issue of its celluloid magazine featuring film articles by “leading minds of the country” and “picturized in such a manner as to clearly edit the thought conveyed by the contributor.”¹³ Counted among the celluloid magazine’s impressive list of early contributors were figures no less than Nikola Tesla, Elmer Sperry, Waldemar Kaempffert, Theodore Roosevelt and Hugo Münsterberg. Having had occasion to pre-screen the first release of the Pictograph on

¹¹ Eileen Bowser, *The Transformation of Cinema* (New York: Charles Scribner's Sons, 1990).

¹² The term “photoplay” itself was a feature of this industry-wide effort to make cinema more appealing to the middle class public (Langdale 2002, 36). It was for precisely this reason that when the Modern Theatre in Boston reopened as a movie theater in 1914, hanging from its arched entrance between two Corinthian pilasters was a sign advertising “High Class Photo-Plays.” The rise of the feature film also played an important uplifting the cultural status of the medium (Bowser 1990).

¹³ “Paramount Pictographs,” *The Moving Picture World*, February 1916.

January 25, 1916, Münsterberg reported back to his friend Teddy Roosevelt that "Yesterday in the office of the Paramount Pictures Corporation in New York I had the pleasure of a private performance showing your fervid preparedness speech on the piazza of your house. As psychological experiments of mine will appear in the same reel, I shall be with you before many thousands of audiences, but let me assure you once more I am with you in a better sense than a mere pictorial companionship on the screen."¹⁴ The outbreak of the war had created tension between the old friends, and cinema, Münsterberg hoped, might bring them back together.



Figure 5.2: *The American Club Woman* (July 1916): 2

¹⁴ Hugo Münsterberg to Theodore Roosevelt, 26 January 1916, Microfilm: Series 1, Reel 205. Theodore Roosevelt Papers, Lamont Library, Harvard University.

On December 3, 1915, Münsterberg submitted to George R. Meeker, managing editor of the Pictographs, his first scenarios. Each film, Münsterberg explained, was to engage the audience in a different “psychological experiment.” The complete series, he suggested, should be advertised as “Testing the Mind,” as each experiment was to measure a different mental quality in relation to the psychological requirements of various vocations. “In submitting to the Paramount Company this course of psychological test picture” he told Meeker, “I want only to emphasize that they are in a way incomparable with anything else which the moving picture companies have as yet undertaken....Here for the first time people in the audience are not merely passive spectators, that see there plays or news or other demonstrations but are able to do something and are almost playing a game which they enjoy but are able to do something which at the same time instructs them.”¹⁵ Münsterberg had made a similar observation about a test he had used screening candidates for the American Tobacco Company which required solving a word jumble such as “Chicago” from “Cogiach.” The test “appeared to the candidates like a puzzle game” he remarked in his book *Business Psychology*.¹⁶ Perhaps it was the tested entertainment value of the word jumble that led Paramount to include the film version in their first release.

Indeed vocational tests and simple experiments from the Harvard Psychological Laboratory supplied ample fodder for Münsterberg’s scenarios. In “Can You Make a Quick Estimate?” for example, Münsterberg had borrowed the imagery used by his student Charles T. Burnett in his published study “The Estimation of Number.” In Münsterberg’s description the audience would be prompted to estimate the number of

¹⁵ Hugo Münsterberg letter to George R. Meeker, December 1915, Mss. Acc. 2443, HM-BPL.

¹⁶ Hugo Münsterberg, *Business Psychology* (Chicago: La Salle Extension University, 1915): 285.

apple trees in an orchard, then shown corresponding imagery for a period of three to five seconds. In the next trial, audiences viewed on the screen moving pictures of a crowded hall and were asked to estimate how many people were in the room. Burnett's study, while using more abstract stimuli like white dots on a black board, described the practical significance of the research in relation to its referent: "There are situations not few in life in which we find ourselves estimating the number of objects in some group...The public speaker finds himself wondering whether this present scattering audience is larger than the one that crowded into the front seats. The farmer riding between adjoining orchards judges roughly the prospective yield by the comparative estimate of the fruit in sight."¹⁷

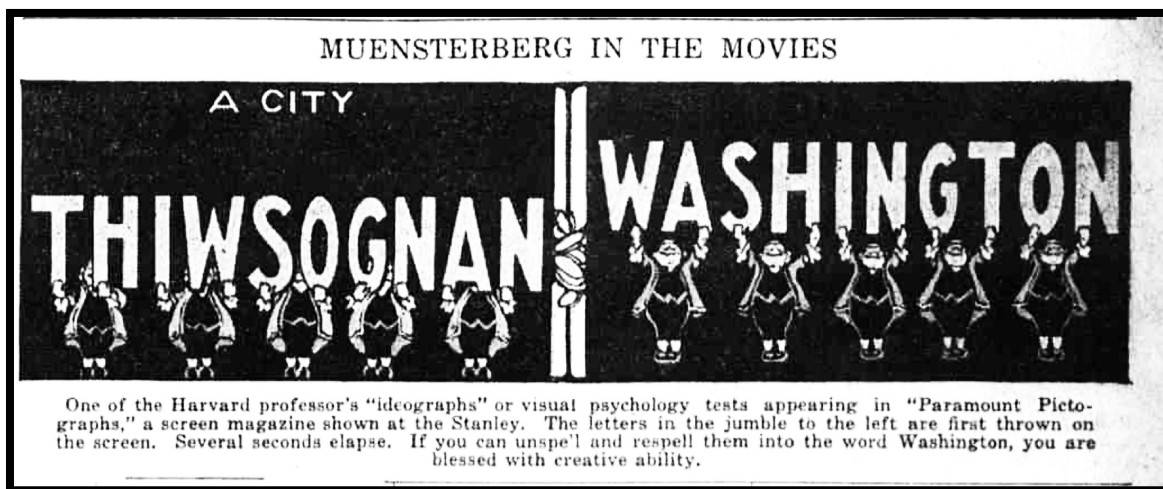


Figure 5.3: "Muensterberg in the Movies." *Evening Ledger*. February 26, 1916.

Münsterberg's vision, however, was not merely to translate laboratory experiments into interactive film experiences, but to make films into a means of self-analysis and vocational guidance. In a speech at Madison Square Garden, Münsterberg explained:

¹⁷ Charles T. Burnett, "The Estimation of Number," *Harvard Psychological Studies* (Houghton Mifflin and Company) 2 (1906): 349-404.

I have arranged my mental tests in the Pictograph so that motion picture audiences may learn what characteristics equip one for special kinds of work, so that each individual may find his proper setting. There are tests to show whether one has a constructive imagination, the ability to think quickly—these are for the executive type of mind...My scenario shows simply how the constructive mind can build names out of letters arranged in a totally different order from the original one.

For the man who does detail work there is another kind of test. In this the pictures show how keen is one's power of observation and the scenes have important details missing which may not be apparent at first glance. There is no type of mind which cannot be classified through this series, which may do a wonderful work in making the necessary connection between talent and the occupation for which it is best suited.¹⁸

Following his earlier critique of vocational guidance under Parsons, Münsterberg maintained that the average person was incapable of accurate self-observation. "Testing the Mind," however, could intervene in this process by providing an objective means of self-evaluation. In this way, Münsterberg's tests were not intended to screen audiences for employers, but reveal aptitudes and deficiencies to the spectators themselves towards the end of self-selection. However, as he considered the mind plastic, the Pictographs he also hoped would encourage a spirit of self-improvement.¹⁹

While sympathetic with his bold vision, letters between Münsterberg and Paramount between December 1915 and June 1916, reveal a plethora of obstacles, misunderstandings, and competing interests. One notable incident occurred on December 11, 1915, shortly after Münsterberg had viewed the first rough cuts at the Paramount offices in New York City. So unsettled was Münsterberg by what he had seen, that upon returning to Cambridge that evening he wired George R. Meeker, managing editor of the Pictographs, demanding they halt production until further notice. Two days

¹⁸ "Munsterberg Speaks at Paramount Reception: George Beban and Other Notables at Exposition," *Motography*, May 1916: 1215.

¹⁹ Scott Curtis, "Like a Hailstorm on the Nerves of Modern Man': Cinema, Legibility, and the Body in Germany, 1895-1914." University of Iowa, Ph.D. Dissertation, December 1996.

later Münsterberg wrote Meeker, outlining in painstaking detail, the unique demands of his scenarios and the studio's failure to meet those special requirements.



Figure 5.4: Sargent, Epes Winthrop. "Advertising for Exhibitors." *The Moving Picture World* (May 13, 1916): 1162.

High on the list of complaints was Münsterberg's sense that Paramount had failed to live up to their own self-advertised mission of delivering high-class content to the masses. This criticism had been stimulated by the appearance of an animated chicken in one of his experimental films. "I know very well" he told Meeker, "that in your New York houses a large part of the audience link the word 'chicken' with a girl." Ever-sensitive to the power of association, Münsterberg did not want to "be the one who stimulates them to do so." "The more I thought about" he continued, "the more I felt that such a rather

vulgar effect and especially such use of Broadway slang would lower the level of the whole undertaking."²⁰ It was, he suggested, perhaps the unconscious yielding "to the less refined taste of your cartoon draughtsman," which was at fault. His issues with the rough cuts, however, were not only on cultural grounds, but experimental as well. In "Have You a Constructive Imagination?" audience members were to be presented with a series of incrementally more difficult word jumbles. In an attempt to make the tests more entertaining, Paramount handed production over to the animation department. What resulted was a sequence in which each series of letters was brought out on screen by a different cast of animated characters. First, four letters were delivered by four boys, next five letters hauled on screen by a donkey cart, and with each subsequent series a different delivery system. Such inconsistencies in presentational form, Münsterberg insisted were outright "dangerous," threatening to "spoil the psychological conditions of the experiment."²¹

In dissecting the issue like a problem in experimental design, he explained that the audience would become "distracted" if forced "to orientate itself anew for every new experiment." What he wanted was for the first trials to function like a sample question whereby the audience would "learn to understand the plan for the experiment with simple four letter words" and then for the scheme "to remain the same for all the following ones in the scene." The critical thing was that "the scheme remain the same through the scene in order to have the adjusted attention of the spectators."²²

Münsterberg, in short, was invoking standards of experimental practice from the laboratory, insisting on standardization and that subjects' "master the rules of the game"

²⁰ Münsterberg to George R. Meeker, 13 December 1915, Mss. Acc. 2362 (2), HM-BPL.

²¹ Ibid.

²² Ibid.

before beginning the actual experiment. The latter was intended to diminish the effect of practice and the former involuntary attention. Whether in the laboratory, vocation bureau, or movie theater, experimental control was necessary in any testing situation. After all, should the donkey cart or other silly animation distract the spectator resulting in their failure to solve the puzzle as quickly as they were capable of, he or she may be lead to misjudge their own mental powers. If the movie theater was to be Münsterberg's laboratory, then the animator was to be his instrument maker, crafting and calibrating the apparatus for the experiment. Therefore any unwanted flourish in Münsterberg's screen tests threatened the objectivity of the experiment.

Later in the same letter to Meeker, Münsterberg would suggest replacing animation with proper cinematography. Live-action, he reasoned, would be altogether "more convincing, because the audience would be less suspicious that they are tricked by the draughtsman." For the tests to be received as scientific Münsterberg understood that trust was everything, and the magic of animation, he feared, would cast the psychologist more as a prestidigitator than an experimentalist. For applied psychologists in this period this was all the more important given the resurgent interest in phrenology and physiognomy particularly around the question of vocational guidance and selection.²³

Shortly after the Paramount Pictographs premiered, Meeker wrote Münsterberg to allay the professor's anxieties over certain editorial decisions. "The psychological experiments" he reported, "are making good in every way," adding, "perhaps after all, the suggestion which the editor made will in turn work out, and we

²³ Elspeth H. Brown, *The Corporate Eye: Photograph and the Rationalization of American Commercial Culture, 1884-1929* (Baltimore: The Johns Hopkins University Press, 2005).

shall be the means of seeing that officials are fitted to their jobs."²⁴ In subsequent months, Münsterberg continued to make compromises and win an occasional battle, however, change at Paramount was on the horizon. On June 20, Münsterberg received word that the new leadership at Paramount would be taking a new course and soon after he was told they would no longer need his contributions.

PSYCHOLOGICAL STIMULUS AND AUDIENCE RESPONSE

Of the roughly 35 scripts Münsterberg wrote between late 1915 and early 1916, approximately 20 separate psychological test films were screened in theaters across the country. For this work he was paid the impressive sum of \$2,600, more than half his annual salary. By most accounts, the films were well received by the public. Shortly after the first issues hit theaters George Meeker from Paramount would write Münsterberg to report that the "psychological experiments are making good in every way."²⁵ One reviewer for the *Moving Picture World*, for example, would write that of all the articles in the first issue of the Paramount Pictograph magazine on the screen, it was Münsterberg's "ingenious contribution" that stole the show, making special reference to the "Have You a Constructive Imagination?" film seen above.²⁶ In Oregon, another reviewer would laud Münsterberg's "Testing the Mind" series for making psychology accessible to the masses. "Not the species of psychology that enables one to detect at a glance all the soul secrets of his associates," the review continued, "but the practical sort which will prove of value to

²⁴ George R. Meeker letter to Münsterberg, 19 February 1916, Mss. Acc. 1941, HM-BPL.

²⁵ George R. Meeker to Hugo Münsterberg, 19 February 1916, Mss. Acc. 1941, HM-BPL.

²⁶ Lynde Denig, "Paramount Pictographs," *The Moving Picture World* 27, no. 7 (February 1916): 1116.

the baker as well as to the banker, and to the streetcar conductor as well as to the opera conductor."²⁷

Of the Paramount Pictograph reviews that comment on Münsterberg's contribution, three themes emerge. First, that Münsterberg's "Testing the Mind" series had done a great service in bringing the "highbrow" to the masses.²⁸ Such comments were also typical in reviews of *The Photoplay: A Psychological Study*, which went to market while "Testing the Mind" was still in theaters. Second was the interactivity of the psychological tests for the screen that was not only entertaining, but also held great pedagogical potential.²⁹ Some of these reviews, to be sure, were official Paramount statements dressed up as objective journalism.³⁰ However, for a public that never shied away from criticizing the Harvard professor, praise was surprisingly the norm. Lastly, that audiences found real value in these films in raising psychological self-awareness as well as insight into the vocational requirement of various occupations.

One audience member recalled Münsterberg's film test on the power of observation.

Something was missing in the picture. What was it? An automobile is seen approaching from a distance in broad daylight down the road. My friend, as she said, "could not see anything missing" until the automobile stopped, the chauffeur got out, and put in its place the large left-hand headlight which had been removed. Of course, every one exclaimed, "Is it possible that I didn't notice that that big thing was missing?" Frequent tests of this kind would soon show, however,

²⁷ *The Morning Oregonian*, "Psychology Made Easy," March 10, 1910: 10.

²⁸ Ibid.; Kelly Kitty, "Handing One to the High Brows," *The Chicago Daily Tribune*, April 29, 1916: 16.

²⁹ W. H. Jackson and Hardin Lucas, "Motion Picture Educator," *The Moving Picture World*, April 29, 1916: 791.

³⁰ See the reviews by Charles Edward Moyer, head of the publicity department at Paramount: "Visualizing America's Defenselessness," *The Columbus Ledger [Georgia]*, March 20, 1916: 15. "Noted Psychologist on the Photoplay," *Motography*, March 22, 1916: 925-926.

that it was not the lack of power of observation, but rather the lack of its development.³¹

As striking as the description itself is the context in which it was given: the 1917 Convention of American Instructors of the Deaf. In her paper on teaching lip-reading to the deaf, Martha Bruhn utilized this example to demonstrate that one could overcome poor observational skill through systematic training and practice. That no mention was made to the work of Étienne-Jules Marey and Georges Demeny who had in the 1890s experimented with the use of chronophotography to teach lip-reading is also instructive.³² Bruhn used the example of Münsterberg because it was accessible to her audience while still coming from a psychological authority.

One more unusual description of the film appeared in the context of a political metaphor:

Among the weird contrivances of Professor Hugo Münsterberg of Harvard is a test of what the professor calls 'logical imagination.' A novice sits at a typewriter and endeavors to finger a letter to a friend. The resulting composition is full of queer mistakes—'mouse' for 'house,' 'tricked' for 'strict,' and the like. The letter is placed before the subject of the test and he is required to read it aloud, not as it is but as he thinks the writer intended it to be. If he can supply the right words and letters quickly he has the faculty of logical imagination. A possession of this faculty is at time invaluable. What would Germany have done had she not been able, in reading Mr. Wilson's notes, to supply his real meaning? ... The American people are poor subjects for Professor Münsterberg and President Wilson, for the American people cling to the notion that a man in the Presidency will feel bound to mean what he writes and says.³³

³¹ Martha E. Bruhn, "The Müller-Walle Method of Lip Reading," in *Proceedings of the Twenty-First Meeting of the American Instructors of the Deaf, Hartford, Conn., June 29 to July 4, 1917* (Washington: Government Printing Office, 1918), 161-166.

³² Marta Braun, *Picturing Time: The Work of Etienne-Jules Marey (1830-1904)* (Chicago: The University of Chicago Press, 1992): 176-177.

³³ *The Sun*, "A Little Study in Psychology," November 6, 1916: 14.

Indeed so well known were Münsterberg's films that as late as 1920 the psychologist Lawrence Marcus would use them in his instructions to workers participating in his experimental study of vocational selection. "We are going to perform an experiment in Applied Psychology," he would tell the workers, "Doubtless you have heard of Prof. Münsterberg and his psychological experiments in the movies. The purpose of his experiments was to test the power of observation."³⁴

On September 28, 1916 Münsterberg sent off a proposal to Samuel McClintock, Educational Director at the La Salle Extension University in Chicago. McClintock had been responsible for publishing Münsterberg's book *Business Psychology* in 1915.³⁵ Making his pitch, Münsterberg explained that when most people think of "mental tests" they think of Binet's or Yerkes' system of rating the intelligence of children. However, far more important, he claimed, were tests like those he had produced for Paramount, which helped all people in the kind of self-analysis so important in finding one's life work. "The subtle study of the mental capacities with experimental methods" he told McClintock "must replace that superficial slipshod analysis of the past." Towards this end, Münsterberg proposed the establishment of an adjunct institution to the correspondence school to distribute a booklet of mental tests as well as process test results. As the "moving picture scenarios went under the title 'Testing the Mind,'" Münsterberg suggested the same title for the booklet, in which he also hope to "give the story of those moving pictures."³⁶

³⁴ Lawrence Marcus, "Vocational Selection for Specialized Tasks," *Journal of Applied Psychology* 4, no. 1 (March 1920): 186-201.

³⁵ *Business Psychology* had been published as both a book and series of pamphlets in connection with a correspondence course on business administration.

³⁶ Hugo Münsterberg to Samuel McClintock, 28 September 1916, Ms. Acc. 2357a (1), HM-BPL.

Shared between these two projects was more than just overlapping source material, it was a vision of bringing psychotechnics to the masses. In "Testing the Mind" the screen was the medium of dissemination and the movie theater the makeshift laboratory for administering the experiments. In the proposed booklet, paper took the place of celluloid and virtually any site, from living room to lecture hall, was opened up to experimental use. The critical thing was to take the kinds of testing techniques developed in the seclusion of the psychological laboratory, and transform them into open psychotechnologies, available to anyone in search of objective psychological insight. Moreover, by looking back at early experimental psychology, we see that the same methodological concerns over experimental controls and the standardization of self-observation were projected onto the very production of Münsterberg's films themselves, thus screening to the masses not only the means of self-analysis but the norms of the psychological laboratory.

THE STREET

In 1892 the street was merely an obstacle to sound psychological research. Four months after arriving at Harvard to take charge of the Psychological Laboratory in Dane Hall, Münsterberg would complain: "whoever has undertaken psychological investigations on the corner of Harvard Square, at a place where the electric cars cross from four directions, and where the hand-organs of the whole neighborhood make their *rendezvous*, — out of his soul will not vanish the wish that a new laboratory may some time arise in a more quiet spot."¹ Located above the student co-operative in Dane Hall, at the busiest intersection of Massachusetts Avenue, Münsterberg's description was hardly an exaggeration. With each passing year traffic grew worse as the population swelled, commercial activity increased, traffic intensified, and new electrical infrastructure was laid.

It was against this backdrop of urbanization that Münsterberg commenced his campaign for "a new building...far from the noise of Harvard Square."² This decision, not coincidentally, came on the heels the Boston Elevated Railway's decision to lay a new

¹ Hugo Münsterberg, "The New Psychology, and Harvard's Equipment for Teaching It," *The Harvard Graduates' Magazine* 1, no. 2 (January 1893), 201-209. For a biographical study of Münsterberg and his contributions to applied psychology see: Matthew Hale Jr., *Human Science and Social Order: Hugo Münsterberg and the Origins of Applied Psychology* (Philadelphia: Temple University Press, 1980).

² Hugo Münsterberg, "The Psychological Laboratory," *Annual Reports of the President and the Treasurer of Harvard College, 1899-1900* (Cambridge: Harvard University 1900): 255-256. President Eliot agreed with Münsterberg assessment noting in his own report the very real need of the Department of Philosophy for "laboratories, seminaries, and a library...as remote as possible from the noises of the city." (27)



Figure 6.1: Harvard Square facing west down Massachusetts Avenue. Dane Hall on the right directly across from the trains (ca. 1906). Detroit Publishing Company Photography Collection, Library of Congress, Washington, D.C.

double track directly outside Dane Hall.³ With construction underway that September, Münsterberg brought his case before the Visiting Committee of the Philosophical Division. The "evils connected with the present locality of the psychological laboratory," he told the Committee, "are not only such as result from narrowness. Its position on Harvard Square, with the continuous noise and the vibration of the ground is perfectly

³ "Should Not Be Granted," *The Cambridge Tribune* (February 3, 1900), 4. This article, protesting the plan for laying new tracks, describes Harvard Square as already "merely a switchyard for the cars of the Elevated Railway Company" which "should not be further encroached upon by railway tracks." See also: "Relocating Harvard Sq. Tracks. Then the Vitrified Brick Will be Laid by the City—Two Weeks of Turmoil," *The Cambridge Tribune* (September 8, 1900), 1.

prohibitory for large groups of psychological studies and disturbing for every kind of work for which concentration of attention is a fundamental condition."⁴

With the committee's blessing the wheels were in motion by early 1901. Even William James, despite his distaste for fundraising, threw his weight behind Münsterberg's cause.⁵ At a private fundraising event in Boston on February 14, 1902, James poignantly recounted the tale of the Psychological Laboratory's humble beginnings as a glorified instrument closet in the Lawrence Scientific School up to its present position "on the most noisy corner of the college yard." "Something must be done," he pleaded, "for the relief of psychology," lest Harvard be left behind in the field he himself had pioneered.⁶

With the opening of Emerson Hall up on calm Quincy Street on December 27, 1905, the laboratory alas seemed safe from the adulterating influence of Harvard Square. However, no sooner had the street ceased to be an *obstacle* to psychological research than it became an *object* of experimental inquiry. As discussed in chapter five, already by 1910 Charles Sherwood Ricker had attempted to design a psychological apparatus to test chauffeurs in the Psychological Laboratory. Although Münsterberg later disavowed this project, he had clearly described the problem in his 1909 article "Finding a Life Work." "No boy ought to become a chauffeur, however his fancy is excited by motor-cars," he

⁴ Hugo Münsterberg, "To The Visiting Committee of the Philosophical Division in Harvard University," 20 March 1901, Mss. Acc. 2498.1. Hugo Münsterberg Collection, Rare Books & Manuscripts, Boston Public Library.

⁵ William James to Hugo Münsterberg, 11 April 1901, William James Papers, bMS Am 1092.9 (3263-3305), Houghton Library, Harvard University.

⁶ "Emerson Hall at Harvard Being Planned as a Memorial and as a Real Necessity. Philosophers in Need of a Single Building in a Quiet Place," *The Boston Herald* (February 15, 1902), 12.

would write, "if his reaction times in the laboratory indicate that he would not be quick enough to stop his automobile if a child ran in front of his wheels."⁷

Two years later, another problem bearing on street safety would capture Münsterberg's attention. Working in connection with the American Association for Labor Legislation (AALL) and the Boston Elevated Railway, Münsterberg's tasked was devising an experimental technique for selecting reliable streetcar motormen. Unlike the more elaborate immersive apparatus developed by Ricker for the streetcar motorman, Münsterberg aimed to capture the experience of looking out on the "changing panorama of the street" from a trolley platform by more abstract means. The result was a small box that when cranked revealed through a window a changing display of digits printed on gridded cards. By bisecting each card with two bold black lines the changing scene through the window was said to represent tracks on a street and the digits potential obstacles ahead such as pedestrians, motor vehicles, or horse-drawn carriages. By successfully calling off each digit that represented a potential threat to the traffic ahead, Münsterberg believed he could predict the behavior of the motorman at work.

The year 1914 would present yet another problem generated by the modernization of city streets: electric street lighting. Like the AALL's recruitment of his services two years earlier, Münsterberg had accepted an invention to join Street Lighting Committee of the National Electric Light Association (NELA) as a scientific advisor. Electrification and the rise of more powerful and efficient incandescent lighting technologies had created a real need for standardizing of street lighting specifications. To aid in this endeavor Münsterberg advised the committee to hire his student, Harold E.

⁷ Hugo Münsterberg, "Finding a Life Work," *McClure's Magazine* Vol. 24, No. 4 (Feb. 1910): 398-403.

Burt, to join the crew of illuminating engineers already working on the problem of how to determine optimal street lighting conditions. For Burt's part this would mean spending the summer on Intervale Avenue in the Bronx attempting to bring the NELA Committee's mile-long test street under experimental control. This assignment marked not only a turning point in the restructuring of the Harvard Psychological Laboratory's relationship to the outside world, but Münsterberg's deepening commitment to installing his students as psychotechnical experts.

Using these three case studies—Ricker's chauffeur test, Münsterberg's motormen test, and Burt's street lighting investigation—this chapter explores three contested efforts at psychotechnical interventions into the modernization of city streets. Through immersion, schematization, and field investigation, each case represents three different methodologies that continue to divide the field of applied psychology.

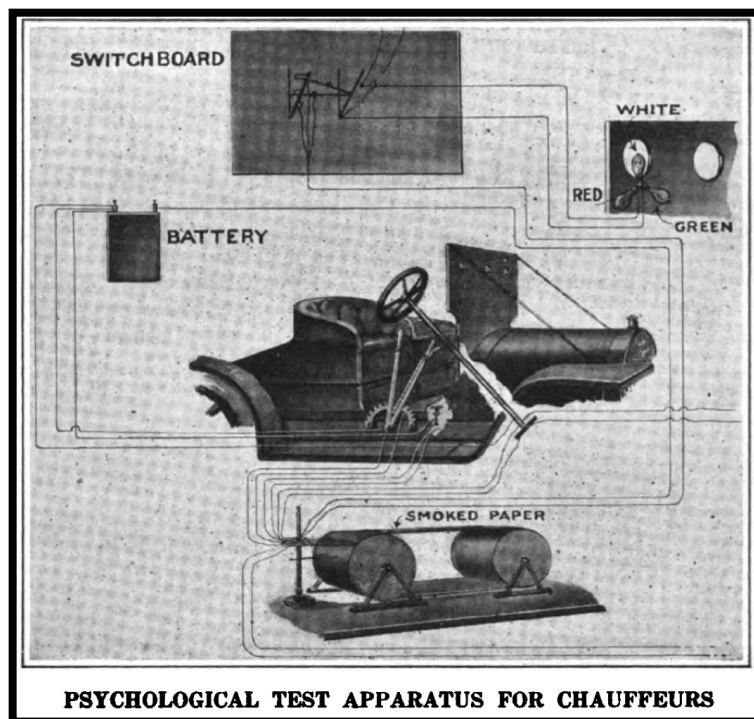
THE SIMULATED STREET

Writing in the *Harvard Illustrated Monthly* in March 1910, Charles Sherwood Ricker would explain the chauffeur problem as a uniquely urban problem. While any competent adult could safely operate an automobile in the countryside, he explained the majority of vehicles existed in "congested city streets." Under such conditions "it is positively fatiguing"

[for] the average automobilist to drive his machine through the streets of a large city for any length of time. People are no longer frightened by his raucous or ear-piercing horns, and often give him just cause for anger by their behavior. The youngster, too, can never be counted on, and the greenest chauffeur soon learns

after half a dozen narrow escapes that ten miles an hour is fast enough when "little tots" are to be seen in the street, or even on the curbstone within twenty yards.⁸

In order to test the facility with which chauffeurs respond to such perceptual chaos, Ricker constructed a dummy vehicle fully equipped with a steering wheel, clutch, throttle and brake. Each component was then wired to a kymograph that allowed the experimenter to measure the reaction times of the driver to various stimuli. Although rumors circulated that Ricker's experiment used motion pictures to create the illusion of driving down a street in the test vehicle, the only stimuli for the driver were colored lights mounting an opaque windshield-screen. Prior to the test trials subjects were to study the meaning of various 'traffic signals' so they knew whether to turn or brake at the appropriate signal. For example, if a white light was flashed then the subject was to turn right; three green lights, a sharp turn and release the clutch.



PSYCHOLOGICAL TEST APPARATUS FOR CHAUFFEURS
Figure 6.2: Ralph Bergengren, "Psychological Apparatus for Testing Chauffeurs," Scientific American (July 8, 1911): 29.

⁸ Charles S. Ricker, "Psychology and the Chauffeur," *Harvard Illustrated Monthly* 11, no. 6 (March 1910): 185-188.

The reactions to Ricker's study were mixed, but on the whole reflected a deep anxiety about the increasingly close relationship between technology, operators, and safety. That is, while concern about mechanical malfunctioning or material flaws were particularly pronounced in the late nineteenth century, 'human failure' had become a watchword of the early of the twentieth century.⁹ Psychologists in particular had played an important role in raising awareness about human failure in railroading by insisting that color-blindness testing be required for all conductors, signal and motormen.¹⁰ At the same time, for the railroaders themselves such 'tests' were often perceived as threats to their jobs, or worse, an easy excuse for the railroad company to lay blame all accidents on their employees.

One local reaction with the Harvard community came from an undergraduate by the name of Henry Ziegel. Responding to Ricker's article on the chauffeur test in the *Harvard Illustrated Monthly*, Ziegel pointed out that licensing procedures offered a more satisfactory solution than some whimsical psychological experiment. Why one should privilege an artificial experiment over a real life road test was simply beyond Ziegel's comprehension.¹¹ Furthermore, psychological tests, he suggested, overemphasized the

⁹ Mark Aldrich, "'The Peril of the Broken Rail': The Carriers, the Steel Companies, and Rail Technology, 1900-1945," *Technology and Culture* 40, no. 2 (April 1999): 263-291.

¹⁰ William Churchill, "Signal Glass," *Official Proceedings of the New York Railroad Club* 24, no. 1 (December 1913): 1388-3507; George M. Stratton, "Railway Accidents and the Color Sense," *Popular Science Monthly*, March 1908: 244-252; E. W. Scripture, "A Test of Safe Color Vision," *Yale Psychological Studies* 8 (1900): 1-20.

¹¹ Henry H. Ziegel, "Experience and the Chauffeur," *Harvard Illustrated Monthly* 11, no. 9 (June 1910): 308-310. Ricker, in fact, had suggested using his apparatus in conjunction with road tests. "This apparatus may be connected to the frame of an automobile," wrote Ricker, "with the driver's seat, a wheel of conventional size, a foot clutch release, an emergency brake, and a dummy throttle, or may be attached to any standard machine for actual road tests."

human factor as opposed to technologies such as brakes, signals, and signage, which unlikely people could more effectively be regulated.¹²

Similar critiques grounded in the impracticality of experimental artifice appeared on the pages of the industry magazine *The Motor World*. Though conceding that psychology had proven its practical worth in medicine, one writer questioned to what extent this new science was actually applicable in the unwieldy world beyond laboratory walls. "While it may be admitted, as Professor Ricker says, that the main difficulty with the majority of chauffeurs lies in their inability to react quickly upon perceptions and impressions, it must be remembered...that the conditions of the test are so artificial that they form no real criterion as to the abilities of the person under test to react swiftly upon real danger signals, and under actual existing street conditions."¹³ In the end, the writer concluded, "the real measure of ability to operate a car successfully under trying conditions is the road tryout under real, not imaginary, conditions."¹⁴ As with many critiques of applied psychology, common sense was often claimed to trump overwrought experiments and psychological expertise.

THE MIND OF THE STREETCAR MOTORMAN

On February 5, 1912, John B. Andrews, secretary of the American Association for Labor Legislation (AALL), wrote to Hugo Münsterberg with the following inquiry.

One of our members representing two traction companies gives us the following problem. The companies require motormen to pass certain examinations intended to indicate their efficiency. They find, however, that the number of accidents which occurs has no relation to the efficiency of the motormen as

¹² Peter D. Norton, "Street Rivals: Jaywalking and the Invention of the Motor Age Street," *Technology and Culture* 48, no. 2 (April 2007): 351-359.

¹³ "Psychology Applied to Motorists," *The Motor World* 23, no. 2 (April 1910): 83.

¹⁴ Ibid.

indicated in his examination. Frequently those motormen who pass the best examination have the largest number of accidents. They now wish to know if it is not desirable and possible to make some kind of psychological test toward the prevention of accidents.¹⁵

Not only was such a test possible, Münsterberg replied, but indeed "only psychological tests can finally lead toward the prevention of accidents."¹⁶ However, to the best of his knowledge there was no current research on the motormen problem therefore he would have to further investigate the issue before making any practical suggestions. Suspecting that he had been contacted in part due to the chauffeur experiments, he noted in his letter that while "there were newspaper stories afloat concerning psychological tests which this laboratory had arranged for the examination of chauffeurs...these reports were premature."¹⁷ More directly relevant Münsterberg cited his recent experience devising a psychological test for the selection of sailors, work that had been carried out at the instigation of Emil Leopold Boas, Director and General Manager of the Hamburg-American Line. This prescient investigation took place mere months before the sinking of the Titanic.

With Münsterberg's cooperation secured, Andrews began finalizing plans for a conference on psychological tests for motormen to be held in late February at the AALL offices in New York City. Leading experimental psychologists from Columbia University such as Robert S. Woodworth, Harry Hollingworth and Edward K. Strong, Jr., as well Cornell psychologist Guy Montrose Whipple, were but a few of the notable scientific

¹⁵ J. B. Andrew to Hugo Münsterberg (May 5, 1912), AALL, #5001.

¹⁶ Hugo Münsterberg to J. B. Andrew (February 5, 1912), AALL, #5001.

¹⁷ Ibid. Note that this clearly contradicts Münsterberg's denial of the chauffeur experiments one year later. The most likely explanation is that he simply wished to distance his laboratory from the rumors that he had invented some kind of "cinematographic nerve test" for chauffeurs.

names invited.¹⁸ Additional invitations were extended to Martin J. Insull, general manager of the Louisville & Northern Railway, Bernard Flexner, Insull's legal counsel, S. W. Johnson of the Philadelphia Rapid Transit Company, Lucian W. Chaney of the United States Bureau of Labor, and William Mahon, president of the Amalgamated Association of Street and Electric Railway Employes of America.

In Harry Hollingworth's memory of the event, most the research proposals put forward that day were met with lukewarm interest, that is, until Münsterberg took the stage.

"You do not need zee long investigation", he declared. "You need only go to zee qualified psychologist and he will give you zee test." In fact, he continued, "I have eet in my pocket." Whereupon he produced a pack of cards bearing designs to be sorted into appropriate categories. When he later published a description of this test he announced instead that it was for the selection of ship captains.¹⁹

Hollingworth's reminiscence, while entertaining, is somewhat misleading. Chronologically we know that the special deck of cards used in his test for ship captains was already developed by the time of the AALL meeting. Moreover, repurposing tests in the context of vocational psychology was hardly unusual and more likely in this case it was used for demonstration purposes. Nevertheless the description captures something of Münsterberg's boardroom charisma and salesmanship, which may account for his unanimous selection at this meeting as primary investigator in the cooperative study of the motormen problem.

There were, however, other factors that explain why Münsterberg alone seems to have taken up this special investigation. Shortly after receiving Andrews initial letter,

¹⁸ Also in correspondence with J. B. Andrews and Martin J. Insull on the subject of psychological tests for motormen were: Joseph Jastrow, Howard March, James R. Angell, E. L. Thorndike, James McKeen Cattell and J. E. Wallace Wallin.

¹⁹ Harry Hollingworth, "Autobiography" [unpublished] (1940), Box 12, M9, HH-AHAP.

Münsterberg had called on General William A. Bancroft, president of the Boston Elevated Railway, hoping to gain greater insight into the motorman problem. This was hardly a cold call, however, as Bancroft lived across the street from Münsterberg and had long-since shown interest in his eminent neighbor's work. In 1908, for example, as president of the Commercial Club of Boston, Bancroft had invited Münsterberg to lecture on applied psychology before the club.²⁰ Moreover, as streetcar accidents had become a major concern for traction companies like the Boston Elevated Railway and its roughly 5,000 motormen and conductors, Bancroft was more than eager to assist the AALL in developing such psychological tests.²¹

In response to Münsterberg's letter, Bancroft tasked Russell A. Sears, head of his legal department, with drafting a report for the Harvard Psychological Laboratory outlining the vocational requirements of motormen and conductors. So extensive and detailed was the final report sent to Münsterberg that he confessed to Sears he had used it as the basis for his presentation at the AALL meeting organized by Andrews in February. Consequently, everyone at the meeting agreed, he told Sears, believed "that the Boston Elevated Railway represents model conditions" for carrying out an experimental investigation.²² By "model conditions" Münsterberg likely meant not only the apparent willingness of the Boston Elevated Railway to cooperate and its convenient proximity to the Harvard Psychological Laboratory, but the unique geography of Boston itself, which made the mental makeup of the motorman all the more pressing a concern. "Nowhere in

²⁰ "Court Psychology. Prof. Muensterberg Says it is to Have its Province," *Boston Daily Globe*, March 1908: 7.

²¹ As Münsterberg notes in *Psychology and Industrial Efficiency*, public safety was but one motivation for the Boston Elevated Railway. With up to fifty thousand accident indemnity cases every year for some streetcar companies, the financial incentive was equally as great.

²² Hugo Münsterberg to R. A. Sears (March 6, 1912), HM-BPL, Mss. Acc. 2398 (1, 2).

the world" the *Cambridge Tribune* reported, "does the motorman need the qualifications enumerated by Mr. Sears more than in greater Boston with its tortuous layout and in which almost every turning is a potential 'dead-man's curve.'" "The narrowness of the streets in the urban district and the immense crowds of pedestrians and vehicles using them" the writer continued, "combine with the tortuousness of the routes to make the position of motorman more difficult to fill adequately than most people have any idea."²³

On March 11, 1912, Sears wrote Münsterberg on behalf of Bancroft and the Boston Elevated Railway to confirm that the company would indeed do all that it could to support a thorough experimental study, including access to its facilities and their motormen as test subjects. There were, however, some initial concerns about how the testing would be perceived by the workers themselves. "The principal difficulty" Sears confided in Münsterberg, "seems to be the possibility of arousing suspicion or possible resentment on the part of some of the employes, but I have no doubt...you can so arrange matters so that this chance will be done away with."²⁴ Behind Sears' worried remark was an acute awareness of the local Watertown Arsenal strike of 1911 prompted by the implementation of Taylor's methods of scientific management, but also the critical comments of William Mahon, president of the Association of Street and Electric Railway Employes, who had suggested that the vast majority of accidents were caused not by "any neglect or fault by the motormen, unless it be through being worked too hard."²⁵ "One of the great questions with the management now," the New York Times quoted Mahon as

²³ *Cambridge Tribune*, "By Psychology, Motormen for Boston Elevated Company's Service May Be Selected by Muensterberg System," March 16, 1912: 9.

²⁴ R. A. Sears to H. Münsterberg (March 11, 1912), HM-BPL, Mss. Acc. 2125.

²⁵ *The New York Times*, "Fit Men to Their Jobs. That's the Way to Prevent Accidents Says a Psychologist," March 3, 1912: 11. On the Watertown Arsenal Strike see: H. J. Aitkin, *Taylorism at Watertown Arsenal Scientific Management in Action, 1908-1915* (Cambridge, MA: Harvard University Press, 1960).

saying at the AALL meeting, "is to increase the speed rates of running time, and thus increase the dividends, and I would advise that your commission, in taking that up, carefully look in that direction, and they will find the cause there instead of with the motormen."²⁶

Despite such concerns, the investigation continued and Münsterberg immediately got to work in the Harvard Psychological Laboratory translating Sears' analysis of the motormen problem into a simple psychological apparatus. In the final experiment the street was represented by a stack of twelve cards, nine inches wide by twenty-six inches long, bisected vertically by two black lines "to represent an electric railway track on a street."²⁷ Each card was then divided up into a grid with miscellaneous squares filled in with digits one through three in red or black ink.

The digit 1 always represents a pedestrian who moves just one step, and that means from one unit into the next, the digit 2 a horse, which moves twice as fast, that is, which moves two units; and the digit 3 an auto which moves three times as fast, that is three units. Moreover the black digits stand for men, horses and automobiles which move parallel to the track and cannot cross the track and are therefore to be disregarded in looking out for dangers. The red digits on the other hand are the dangerous ones. They move from either side toward the track. The idea is that the man to be experimented on is to find as quickly as possible those points on the track which are threatened by those red figures...²⁸

By cranking a handle each motorman under examination progressed a velvet belt, which carried the stimulus cards through a viewing window for the subject to observe potential dangers on the "street." The aim of the apparatus was thus "not to imitate the externals of his work, but to create artificial, measurable, exact conditions by which the

²⁶ *The New York Times*, "Fit Men to Their Jobs. That's the Way to Prevent Accidents Says a Psychologist," March 3, 1912: 11.

²⁷ Hugo Münsterberg, *Psychology and Industrial Efficiency* (Boston: Houghton Mifflin Company, 1913): 69.

²⁸ Hugo Münsterberg to J. B. Andrews (May 24, 1912), AALL, #5001.

mental activity which he needs for the fulfilment [sic] of his duties can be imitated."²⁹ Results were calculated by taking the number of judgment errors, multiplying that number by 10, then adding to that product the time (in seconds) taken to clear all twelve cards; a low score was said to indicate a "high degree of fitness for the avoidance of accidents," a high score, accident proneness.

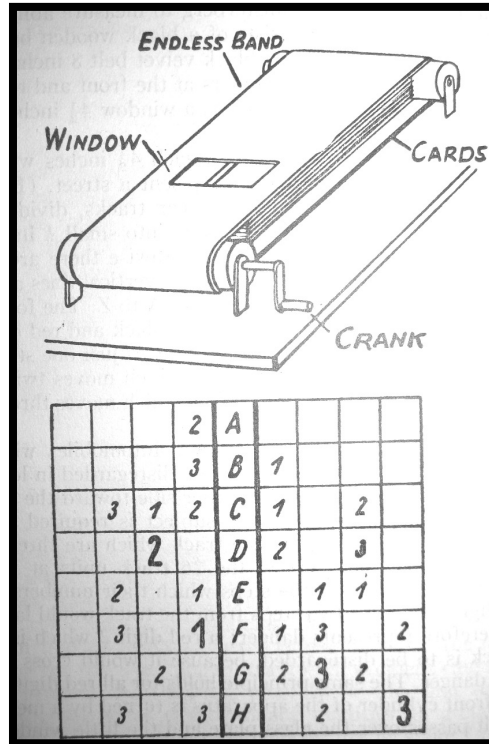


Figure 6.3: Morris Viteles, *Industrial Psychology* (New York: W. W. Norton, 1932).

Although Münsterberg had hoped to continue this research beyond the designated twelve-week test period, after presenting at the second AALL meeting in Atlantic City that June, labor unrest struck the Boston Elevated and all was brought to a halt. William Mahon, whose comments at the AALL meeting in February had foreshadowed such dissent, was on the front line as President of the Association of Street

²⁹ Ibid.

and Electric Railway Employees.³⁰ It was then, at least in part, due to political unrest that Münsterberg was forced to discontinue his motormen experiments. "[A]s the Boston Elevated is in a rather restless condition [with] strikes threatening all the time" he told Andrews, "any experiments with the motormen would give possible rise that new schemes are planned to draw more work out of the men."³¹ Nevertheless, even as the AALL committee dissolved and the Boston Elevated became embroiled in labor disputes, it would not be the last time Münsterberg and his students would become entangled in the politics of the street.

INTERVALE AVENUE AS PSYCHOLOGICAL LABORATORY

The Street Lighting Committee of the National Electric Light Association (NELA) was formed in 1907 to assist its member companies with two issues arising from the rapid growth of electric street lighting. The first issue was of a technical and legal nature; the ever-growing array of illuminants and lighting installations demanded standardization of rating systems, metering practices, and contractual specifications. The second issue, however, was more complex, and reflects radical changes not only in the appearance but the perceived purpose of streets and street lighting at the turn of the twentieth century. Whereas in the nineteenth century street lighting had served a primarily criminalistic and moral function as the "nocturnal police," in the age of the automobile, urbanization and mass electrification, street illumination came also to function as a means for stimulating economic activity and ensuring safe travel after sunset. Policing, to be sure, remained an

³⁰ *The Motorman and Conductor*, "Boston Strike Ends," July 1912: 6-8.

³¹ Hugo Münsterberg to J. B. Andrews (July 14, 1913), AALL, #5001.

important function of outdoor lighting systems, but accident prevention, by 1914, had taken priority as the former was assumed under adequate lighting conditions.³²

In the fall of 1913, the Street Lighting Committee decided that new information was needed on virtually every front of the street lighting problem. In the last two decades of the nineteenth century there had been essentially two lighting options: big and bright lights at distant intervals by electric arcs, or dim and diffuse gas, kerosene, or incandescent lamps closely spaced. By the turn of the twentieth century, however, major innovations in arc lights (enclosed, flame and magnetite types), gas mantles (the Welsbach) and electric incandescents led to a proliferation of street lighting possibilities, each with its relative merits and disadvantages in terms of efficiency, safety and psychological effect.³³ To address this confusing situation a special Joint Street Lighting Committee was formed, combining the NELA committee and an ad hoc committee from the Association of Edison Illuminating Companies (AEIC) to carry out an elaborate street lighting study on Intervale Avenue in the Bronx."³⁴

As no existing test methods satisfied the ambitious plans of the new Joint Committee, a group of technical experts, industry representatives, and academic scientists was assembled to help develop new ideas. Not unlike the American Association for Labor Legislation's investigation into psychological tests for motormen two years earlier, it was

³² Mark J. Bouman, "The 'Good Lamp is the Best Police': Metaphor and Ideologies of the Nineteenth-Century Urban Landscape," *American Studies* 32, no. 2 (1991): 63-78. Wolfgang Schivelbusch, *Disenchanted Night: The Industrialization of Light in the Nineteenth Century* (Berkeley: The University of California Press, 1995). John A. Jakle, *City Light: Illuminating the American Night* (Baltimore: Johns Hopkins University Press, 2001).

³³ Arthur J. Bright, *The Electric-Lamp Industry: Technological Change and Economic Development from 1800 to 1947* (New York: The MacMillan Company, 1949).

³⁴ The investigation was financed through the Special Testing Fund of the Association of Edison Illuminating Companies, which included significant contributions from the General Electric Company, Westinghouse Electric & Manufacturing Company, and the New York Edison Company.

at this stage in the investigation that Münsterberg was invited by the Joint Committee to participate in their methodological deliberations. Moreover, as a major concern of the committee was street safety, Münsterberg likely appealed to the committee as the psychologist with the most experience on such problems. After all, Martin J. Insull, who had been largely responsible for instigating the motormen study with the AALL, was also chairman of the Committee on Accident Prevention at the National Electric Light Association.³⁵

After attending a meeting of the Joint Committee in New York City on April 7, 1914, Münsterberg put forth his perspective as the lone psychologist of the committee. "The discussion of the electric lighting problem," he began,

seems to me to have suffered so far from a neglect of the higher mental processes involved. All the studies which refer to psychological factors at all are essentially confined to the mere process of seeing, especially to the acuity of vision. This is insufficient for the situation in a room, and still more in the street. The mere possibility of visual discrimination does not ensure comfort and still less safety on the street. The most essential point is to have an illumination by which the attention is kept vivid and all the mental functions active. Fair chances to see are of small use, if the pedestrian or the driver comes into a benumbed state in which their attention is dulled and in which their reactions are slow.³⁶

Münsterberg evidently was frustrated by the common-sense psychology of the engineers who failed to see beyond mere visual perception as the most important factor in

³⁵ Robert M. Yerkes, Münsterberg's student and colleague in the Harvard Psychological Laboratory had also notably lectured on the "Psychological Aspects of Illuminating Engineering" in 1910 in a lecture course offered at Johns Hopkins in connection with the Illuminating Engineering Society. Furthermore, Yerkes, in his work with John B. Watson in 1911 had consulted with Street Lighting Committee member Louis Bell among others from the National Electric Light Association in his study of the various illuminants used as stimuli in animal experiments. It should also be mentioned that in late 1913 Münsterberg had agreed to lecture in New York City at the recently established New York Edison School. *Electrical World*, "New York Edison School Term Opens," November 1, 1913: 881.

³⁶ Hugo Münsterberg, "Report to the National Electric Illuminating Society" (April 11, 1914), HM-BPL, Mss. Acc. 2442.

determining the efficacy of a given street lighting installation. To counterbalance this investigatory myopia he proposed the addition of psychological tests to gauge fluctuation of attention, reaction time to aural stimuli, and motor-coordination, all of which he believed would be affected by changes in illumination. This work, however, required a trained psychological expert who could credibly transfer the requisite laboratory techniques into an experimental study on the street. Although critical, Münsterberg's report was well received and by mid-June plans were finalized for Münsterberg's student, Harold E. Burt, to try out psychological tests on Intervale Avenue in the Bronx for a seven week period during the summer remunerated at thirty-five dollars per week.

When Burt arrived in the Bronx preliminary testing had already begun. Intervale Avenue, the test site, was sixty feet wide, paved with Belgian block (similar to cobblestone), and extended from Westchester Avenue to Freeman Street.

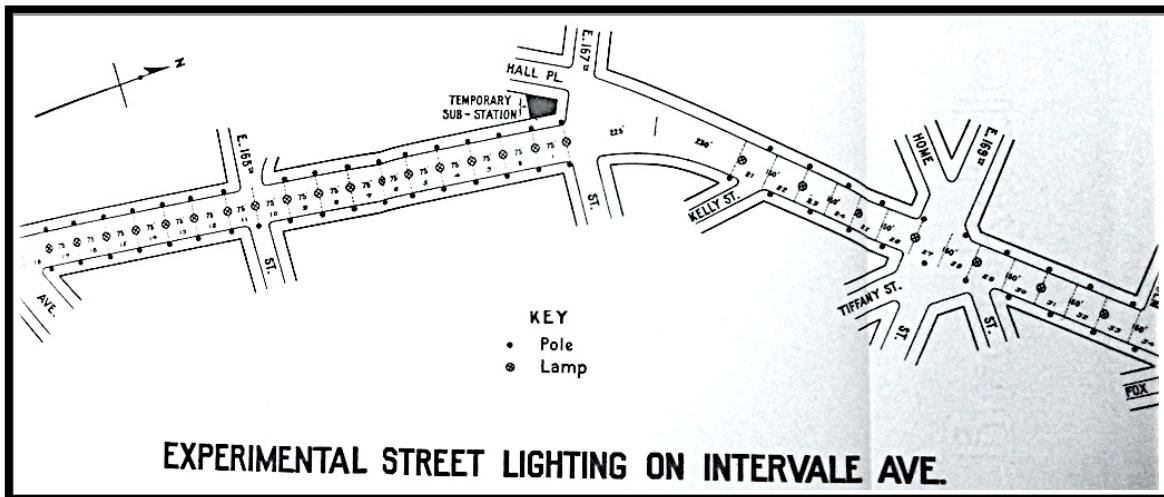


Figure 6.4: "Progress Report of Street Lighting Committee," *Thirtieth Annual Convention of the Association of Edison Illuminating Companies*, White Sulphur Springs, West Virginia, September 15-17, 1914.

In order to compare different lighting installations, the street was divided into two quarter-mile sections. The "northern section," which extended from East 167th to Freeman Street, was illuminated by Mazda "C" lamps (60-100 candlepower) mounted on

poles fourteen feet high staggered curb to curb at fifty-foot intervals. The "southern section," extended from Westchester Avenue to East 167th Street and was illuminated by brighter lamps (250-1000 candlepower) hanging from span-wires overhead at varied heights (18-30 feet) and spacings that ranged from seventy-five to three-hundred feet. Between eight and midnight every evening the Joint Committee planned to test on Intervale Avenue virtually every combination of lamp spacing, height, and luminosity, as well as accessories such as diffusing globes and parabolic reflectors.

The first method employed by the Committee was to compare the two test sections of Intervale Avenue by collecting the "uninfluenced" and "undirected" impressions of observers before and after traversing the test street by foot and automobile. Using standardized surveys, observers would record their thoughts on the relative merits of the different trial illuminations as well as the ease with which they were able to see faces of passing pedestrians (choreographed in advance), surface irregularities, building addresses, street signs, print, and the face of watch. To ensure that the views expressed were representative of the average person, the original plan called for "policemen, chauffeurs, ordinary citizens, college students, illumination experts and other persons of suitable classes" as subjects.³⁷ By June, however, the Committee had decided that "only the more intelligent observers," namely their own illuminating engineers who were "accustomed to considering street lighting," had anything of value to contribute.³⁸ This move to restrict observations to trained observers is interesting not only for the way in which it indicates a preference expert over lay judgment, but because it mirrors the early

³⁷ "Minutes of the Joint Street Lighting Committee," 7 April 1914, Ms. Acc. 2436, HM-BPL.

³⁸ John W. Lieb, "Report of Committee on Street Lighting," *Thirty-Seventh Convention of the National Electric Light Association*, June 4, 1914: 589-629.

practice of experimental psychologists who restricted observation to subjects with psychological training.³⁹

The second experimental method in place upon Burt's arrival was a visual acuity test, which used targets systematically scattered throughout the two sections of the test street. Observers in this test would traverse the northern and southern sections on foot or by vehicle (at 3.5 or 15 miles per hour) and search for surface targets designed to blend in with the Belgium block paving. By correlating the number of targets found with the photometric data collected, general conditions of visibility could be assessed.

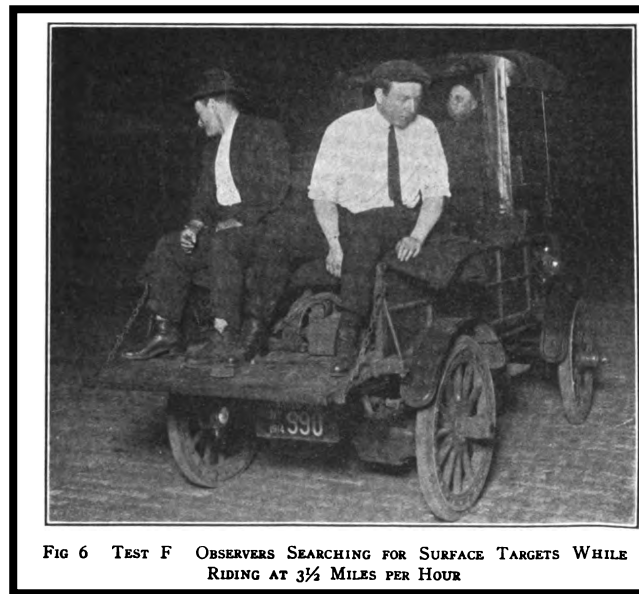


Figure 6.5: J. W. Lieb "Report of Committee on Street Lighting," *National Electric Light Association Thirty-Seventh Convention*, Philadelphia (June 4, 1914): 603.

Amidst all this activity Burt immediately began tinkering with apparatuses and trying out various tests to round out the psychological side of the street lighting investigation. As the official arrangement was for Münsterberg to supervise Burt, the correspondence between professor and student over the summer of 1914 offers not only

³⁹ Kurt Danziger, "A Question of Identity: Who Participated in Psychological Experiments?," in *The Rise of Experimentation in American Psychology*, ed. Jill G. Morawski, 35-52 (New Haven: Yale University Press, 1988).

an unusual insight into Burt's everyday struggles, but the often fraught relationship between laboratory and field. In an early letter to Münsterberg, for example, Burt described an experiment he called the "reaction to danger" test. For this test Burt taped off a fifteen foot section of the street and upon sounding an alarm would measure, using a stop watch, the time it took each subject to get out of the danger zone. This test, however, was soon discarded. As he explained it to Münsterberg,

The "reaction to danger" does not seem to work out well. All the subjects thus far have their mind made up to get forward, as they say the chauffeur will usually turn behind the pedestrian. When then stimulus is given at the middle of the area, they practically always go forward and when it is given two paces from the first edge of the region, they usually make up their mind after the first trial and go that way constantly.⁴⁰

In the age of the auto, pedestrians had formed certain habitual responses to street stimuli making Burt's psychological experiment unworkable. There was, however, a more obvious issue with the "reaction to danger" test, namely the "furor" it created amongst uninformed bystanders. To overcome this variable Burt had hoped to run late night trials, but unlike graduate students back in the Harvard laboratory, his subjects were unwilling to work after hours.

Another issue requiring immediate redress was how to reinforce and make mobile his psychological instruments for use in the street. As most experiments called for a tachistoscope, kymograph, or some other apparatus, portability was a practical necessity. Burt's inventive solution was to retrofit a baby carriage into a kind of mobile lab bench. "I have a small table arrangement mounted on the truck of a baby carriage to carry my apparatus" he told Münsterberg. "The street is paved with cobblestones which causes

⁴⁰ Harold E. Burt to Hugo Münsterberg (July 4, 1914), Mss. Acc. 1595, HM-BPL.

considerable jar, but I have things now so they work in spite of this." This arrangement, naturally, attracted attention from onlookers much like the "reaction to danger" test, but Burt reassured Münsterberg that they were growing "somewhat accustomed."⁴¹

The adverse reaction of pedestrians, inability of subjects to follow directions, and the need for a mobile lab bench, were but a few of the countless obstacles Burt encountered. Yet more elemental was inclement weather and environmental differences between the north and south sections of Intervale Avenue. In reference to the environmental variation Burt reported to Münsterberg,

The two streets are not similar in other factors beside lighting. There are more people in the North (uniform) street, and several lighted windows, so that it is possible that we are not measuring the actual effect of the lighting on the attention, but the effect of the distraction from the sidewalk. The subjects' introspection indicates, however, that they are not conscious of the distraction but all energies concentrated on the test, and it may be possible that it is the more subtle factor of light influence that we are measuring after all. I try to keep conditions as constant as possible, using only a short section of each street which is fairly quiet.⁴²

The problem of distracting foot traffic in the neighborhood Burt would later call the "sidewalk variable," which he attempted to control by selecting a quiet segment of the test street to run trials in the evening when the street was deserted. However, as Burt's subjects had to work the next day and generators were turned off on the weekends, this was seldom a possibility. One proposed solution was to convince the other investigators of the Committee to "equip the same street with both arrangements of lighting and turn them on successively for the tests... [to] keep conditions constant." "I will use all my influence," Burt told Münsterberg, "to bring it about," but apparently his sway was

⁴¹ Harold E. Burt to Hugo Münsterberg (June 1914), HM-BPL, Mss. Acc. 1595.

⁴² Ibid.

limited.⁴³ Instead, his solution was to use only a small segment of each test street where conditions were approximately equivalent. "In one section there was a small garage and in the other a delicatessen store" he noted, but as both typically closed at night he found these two accidental light sources to be roughly equivalent.⁴⁴

After roughly two weeks of refining experimental design, modifying apparatuses, and running preliminary trials Burt, in consultation with Münsterberg, settled on three psychological tests to be carried out under various uniform and non-uniform street lighting conditions. The first was a reaction time test that used two electric bells of distinct tone as an auditory stimulus. In this experiment subjects held two triggers, one in each hand, as they walked up and down Intervale Avenue. When Burt sounded the "cow-bell" the subject was to release the trigger in his right hand, and for the "door-bell" the trigger in his left. Each trigger completed a circuit connected back to Burt's mobile lab bench, so that when either trigger was released the circuit would be broken and the reaction times recorded on the rotating kymograph drum. As each subject strolled up Intervale Avenue, Burt trailed eight feet behind, pushing his baby carriage lab bench and collecting data. In each trial Burt would record between fifteen and twenty reactions before stopping the subject mid-stride so that he could replace the smoked drum of the kymograph and continue recording reaction times.

The second experiment, conducted at regular checkpoints throughout the test street, was intended to measure attention and apprehension. For this experiment Burt constructed a 30 x 30 cm box with a viewing aperture and slot at the base for inserting

⁴³ Ibid.

⁴⁴ Harold E. Burt, "The Effect of Uniform and Non-Uniform Illumination Upon Attention and Reaction-Times, with Especial Reference to Illumination," *Journal of Experimental Psychology* 1, no. 2 (1916): 155-182.

stimulus cards upon which various geometrical figures were drawn. Inside the box was a small battery-powered incandescent lamp for interior illumination. In short, the apparatus was what psychologists called a tachistoscope, an instrument for exposing optical stimuli at controlled intervals. The basic procedure was that at each checkpoint the subject would look into the box tachistoscope (also mounted on the baby carriage) where Burt would expose a series of stimulus cards. To ensure uniformity across trials, Burt would expose each card at one-second intervals regulated by a half-second metronome attached to the side of the apparatus. At the end of each series of exposures subjects would then be handed a paper pad upon which they would be asked to sketch as many of the geometrical forms as they could recall. Once all the data was collected Burt would calculate the results of each test using a point system. Two points were awarded for each correct figure drawn in the correct orientation, one point for a correct figure in the wrong orientation, and zero for omitted or otherwise incorrect figures.

The third experiment was a test of motor coordination and involved yet another apparatus mounted to the mobile lab bench. This apparatus was a 20 x 20 cm white board backed with a brass plate connected to a signal magnet. Without puncturing the brass backing, three holes were bored into the wood, each located at one point of a 10 cm equilateral triangle, and then painted black. Also connected to the apparatus was a brass-tipped stylus wired in-series with the plate, signal magnet, and battery, so that when the stylus was touched to the brass plate through the three holes the circuit was tripped and the time of contact recorded on the kymograph drum. For each trial subjects were instructed to insert the stylus into each hole as rapidly as possible for thirty seconds. Between trials subjects were asked to look down the test street until prompted to go again.

While Burt's experiments were fairly standard, excepting their extra-laboratory context, for the engineers he was working alongside they were altogether confounding. "Most of those who are interested" he complained, "think I am measuring rather the distractions on the street than the actual effect of the lights."⁴⁵ One week later Burt's offhand observation had become outright frustration. "Mr. Millar makes a suggestion", he told Münsterberg,

which I think I will work out although I believe he is wrong. He says that perhaps the higher scores in the non uniform street are due to the fact that it's more poorly lighted and a person "has to be more alert" to avoid obstacles etc, and he cites persons walking in extreme darkness and how keen they are. To my mind we are not measuring voluntary alertness but the effect of the alternating motor impulses as the retinal field changes.⁴⁶

The basic problem, Burt concluded, was definitional: "To the ordinary illumination engineer 'attention' is what he is thinking about at any instant, but I believe our concern is with a much more subtle thing—the general mental setting."⁴⁷

As his time in the Bronx drew to a close and conflict with the illuminating engineers of the Committee continued, Burt began winding down his experiments and looking over his data. The provisional conclusion of his experiments was that under non-uniform lighting conditions, subjects' reaction times were quicker, their attention sharper, and memory stronger. This, however, ran completely counter to the prevailing assumptions of the illuminating engineers, namely that uniform illumination was always preferable. As the original street lighting committee of the National Electric Light Association had reported in 1912, "uniformity of illumination, not high-candle power in

⁴⁵ Harold E. Burt to Hugo Münsterberg (June 1914), HM-BPL, Mss. Acc. 1595.

⁴⁶ Harold E. Burt to Hugo Münsterberg (July 4, 1914), HM-BPL, Mss. Acc. 1595.

⁴⁷ Harold E. Burt to Hugo Münsterberg (July 19, 1914), HM-BPL, Mss. Acc. 1595.

spots, is the ideal to be obtained."⁴⁸ In a similar vein, illuminating engineer Alfred Wohler would write in 1908, "practical experience has demonstrated that uniformity is the chief requirement for good illumination."⁴⁹ And Arthur J. Street, in his article on "Illumination Requirements in Street Lighting" asserted, "the ideal to be aimed at in street lighting is uniform illumination of all points along the course of the street, with the exception of street intersections and similar crossings."⁵⁰

In late July, as Europe was heading to war, Burt returned to his home in Haverhill, Massachusetts to begin analyzing his data and drafting his final report. On August 12, 1914, committee secretary Preston Millar wrote Burt to offer some advice and inquire if Münsterberg would still be able to review his work before submission given the new international situation. There were two criticisms in particular, which Millar expected Burt to face. First,

that the differences in lighting constitute a variable which in comparison with other existing variables is so small that it would appear almost impossible to segregate it and study its influence upon attention, etc. Those who in spite of ignorance of psychology hold this view are likely to be severe critics of methods which were employed and lay great emphasis on certain crudities... As you know some sceptics go so far as to say that even if the tests do appear on the face of the returns convincing, they must remain sceptics by virtue of their belief and in spite of the evidence.⁵¹

⁴⁸ Waldemar B. Kaempffert, *Ornamental Street-Lighting: A Municipal Investment and its Return* (New York: National Electric Light Association, 1912).

⁴⁹ A. A. Wohlauer, "Engineering Problems in Illumination," *Transactions of the Illuminating Engineers Society* 3, no. 8 (November 1908): 696.

⁵⁰ Arthur J. Sweet, "Illumination Requirements in Street Lighting: An Analysis of the Problem of Securing Uniformity of Illumination with Elimination of Glare," *Engineering Magazine* 34, no. 6 (September 1910): 917-919.

⁵¹ Preston S. Millar to Harold E. Burt (August 12, 1914), HB-AHAP, Box 1, Folder "Illumination."

The second criticism, Millar continued, was that while other engineers generally accepted Burt's methods and results showing that reaction time, attention, and motor coordination were better under non-uniform lighting, few were nevertheless convinced that this should be interpreted as evidence of safer conditions. In other words, while the research was valid, they took issue with his conclusions.

As Millar predicted, such criticisms were indeed reflected in the privately printed progress report of the Association of Edison Illuminating Companies presented in September 1914. After describing the psychological tests carried out in detail, the report qualified Burt's contribution by stating:

The members of the Committee, with one exception, are not psychologists, and the Committee therefore does not feel qualified to pass finally upon the correctness of the conclusions which are here presented. Some members of the Committee are hesitant about accepting the results as conclusively demonstrating the superiority of non-uniform illumination from the safety standpoint.

Further, it may be said that the Committee is not prepared to assign a weight to the evidence of these psychological tests which will bring into proper relation with the other test data and secure the proper relative significance of the psychology and the visual elements. That is to say, it is not known what degree of visual superiority would be required to counterbalance an inferiority of mental condition amounting to, say, 10 per cent.⁵²

The problem, it seemed, was one of 'street cred.' While it was Münsterberg's reputation that had originally won Burt a place in the street lighting investigation, outside the laboratory his credibility seemed greatly diminished. Despite such skepticism Burt believed he was onto something important and so he proposed to Münsterberg that the problem be transferred to the laboratory where he could continue his research free from the constraints of the street and the influence of the Joint Committee.

⁵² "Progress Report of the Street Lighting Committee," read at the Thirtieth Annual Convention of the Association of Edison Illumination Companies in White Sulphur Springs, West Virginia, September 15-17, 1914. HM-PC.

As Münsterberg had done recreating the "changing panorama of the street" in his motorman test and Ricker for chauffeurs, back in Emerson Hall Burttt got to work designing an experiment to evoke the psychological experience of strolling down the street under various lighting conditions. To "reproduce" the feeling of "walking in a non-uniformly lighted street," Burttt hung from the ceiling of an interior laboratory room a lamp controlled by a dimmer set to gradually increase and decrease the intensity of illumination in a continuous cycle. According to Burttt, such "conditions roughly paralleled those to which the individual on the street is subject to as he walks along, the brightest point in the cycle in the laboratory corresponding to the position under a street lamp, the darkest part of the cycle to the position midway between lamps and the intervening points in the cycle to the intermediate position in the street."⁵³ To approximate uniform street lighting the room was simply "left at its normal condition with the lamp at maximum intensity."⁵⁴

Finding a way to reproduce the shadows cast by light hitting an irregular surface like the Belgian block paving on Intervale Avenue required more smoke and mirrors. To produce this effect Burttt built a black box 115 x 35 x 20 cm with one panel punctured by rectangular holes; this panel also moved vertically like a card in a card holder. Inside the box was a 25-watt tungsten lamp installed opposite the porous panel. Using a cord and pulley system the movements of this panel were synchronized with the dimmer so that the brick-shaped shadows it projected onto the wall matched the oscillations of the overhead light source in the otherwise darkened laboratory room. In this film noir laboratory set,

⁵³ Harold E. Burttt, "The Effect of Uniform and Non-Uniform Illuminatin Upon Attention and Reaction-Times, with Especial Reference to Illumination," *Journal of Experimental Psychology* 1, no. 2 (1916): 169.

⁵⁴ Ibid.

with shadows moving across the wall and "street lamp" overhead, Burt believed he had satisfactorily captured the sensory experience of walking the streets at night and thus was ready to carry out the same psychological tests he had run on Intervale Avenue.

After several months of testing Burt found his results in Emerson Hall had generally confirmed his findings on Intervale Avenue. Moreover, unencumbered from the censorship of the Joint Committee, in his published account he was free to make more sweeping conclusions.

The work in the laboratory with various degrees of non-uniformity would seem to indicate a similar condition in the case of more rapid movement through the street such as that of the driver or chauffeur. Driver and pedestrian alike must make quick decisions and reactions and a difference in reaction time of few hundredths of a second may avert or precipitate an accident. The conclusion thus seems warranted that, *ceteris paribus*, non-uniform illumination is more conducive than uniform to safety on the street.⁵⁵

Unlike Ricker's chauffeur test or Münsterberg's motormen study, the unusual feature of Burt's work on street lighting is that it was originally carried out on the street itself. However, by beginning his research in this way Burt soon realized that not only was everyday life difficult to manipulate and control, but that outside the laboratory he lacked scientific credibility afforded by a psychological laboratory seated in an academic milieu. Burt responded, in turn, by translating the street lighting problem into a laboratory investigation where not only would he have complete experimental control, but upon publishing this work his results would be received with the full weight of his scientific authority.

⁵⁵ Ibid., 182.

This lesson was not lost on his mentor. In a lecture entitled "Psychology and Light," delivered before the prestigious Illuminating Engineering Society in early 1916, Münsterberg found occasion to reflect on this experience of his student.

For our purpose not the results are important but the method. If our laboratory tests can analyze the real elements which enter the situation, it must be more advantageous to study the question under the pure conditions of the psychological workshop where every factor can be standardized and varied at will than on the street where the manifold conditions confuse the issues. As soon as the principles are recognized, it is not difficult to take account of all those disturbing elements by which the street differs from the quietude of the workroom.⁵⁶

Münsterberg, in short, was reasserting the same position he had held in 1893 when he bemoaned the noise and vibration of Harvard Square and maintained that to experiment was simply to observe under artificially controlled conditions in the laboratory. However, as his research (and consequently that of his students) moved towards more practical questions in the early twentieth century, this principle became more and more difficult to defend as lay critics of applied psychology questioned to what extent abstract experiments had any relation whatsoever to everyday experience. It was for this reason that in his final report on the motormen tests to the members of AALL committee that Münsterberg insisted that despite the simplicity of his apparatus and methods, a survey of all motormen involved revealed "that they really pass through the experiment with the feeling which they have on their car."⁵⁷ That is, searching for symbolic obstacles on the gridded test cards, he maintained, satisfactorily stimulated the essential sensory experience of looking down the street from the conductor's platform, with all the attendant demands on attention, anticipation, and reaction time.

⁵⁶ Hugo Münsterberg, "Psychology and Light," *Transactions of the Illuminating Engineering Society* 11, no. 6 (August 1916): 647-648.

⁵⁷ Hugo Münsterberg to J. B. Andrews (May 24, 1912), AALL, #5001.

Still, the street represented for Münsterberg not only the problem of bringing the laboratory to bear on everyday life, but of the credibility of psychological expertise outside the laboratory. "[In] all these new efforts the psychologist meets a certain public resistance, or at least a certain disregard" he lamented in a 1913 essay entitled "Naïve Psychology."

As long as he was simply studying the laws of the mind, he enjoyed the approval of the wider public... But when it became his aim to discover mental features of the individual and to foresee what he can expect from the particular groups of men, every layman told him condescendingly that it was a superfluous task, as instinct and intuition and the naïve psychology of the street would be more successful than any measurements with chronoscopes and kymographs.⁵⁸

While it was true that applied psychology faced resistance from a public threatened by a science that claimed to know them better than they knew themselves, the real challenge came from competing forms of professional and technical expertise. Whether it was teachers in the classroom, lawyers in the courts, or illuminating engineers in the street, by entering the jurisdiction of other professions applied psychologists learned the hard way that it was a fine line between supplementing the work of others and undermining their professional authority.

⁵⁸ Hugo Münsterberg, "Naïve Psychology," *The Atlantic Monthly* 112, no. 6 (December 1913): 802-803.

CONCLUSION

On September 5, 1916, Hugo Münsterberg would write Harvard's President Abbott Lowell in a mood of nostalgic concern. It was twenty-four years ago almost to the day, he reminisced, that he had arrived in Cambridge to take over for William James as Director of the Harvard Psychological Laboratory.¹ Now, after "thirty years of overwork and of the excitement connected with the war," he feared the worst: "the possibility of my sudden death or of a brain disease."² There was also family history to consider. Münsterberg, at fifty-three, was rapidly approaching the age when his father, Moritz, had suddenly passed away.³ However, unlike his father who had left behind a handsome inheritance for his four sons, Hugo worried that his wife and two daughters would enjoy no such fate. Two decades of frequent travel to Germany, he told Lowell, left him "poorer today than...twenty-four years ago."⁴ Moreover, for his family to qualify for a pension from the Carnegie Foundation he would have to complete twenty-five years as a Harvard professor, a condition he doubted he would live long enough to fulfill.

¹ Münsterberg and his family departed in August from Hamburg, narrowly escaping a cholera epidemic and arrived in at the Port of New York (via Ellis Island) on August 29, 1892. They spent three days in New York City before proceeding to Cambridge (via Boston) on September 1.

² Hugo Münsterberg to A. L. Lowell, 5 September 1916. Box 71, Folder 462. Records of the President of Harvard University, Abbott Lawrence Lowell, 1909-1933, UAI 5.160x. Harvard University Archives, Harvard University.

³ "Jahresbericht der Naturforschenden Gesellschaft zu Danzig für 1880," *Schriften der Naturforschenden Gesellschaft in Danzig*, 1881: 1. Moritz Münsterberg (1825-1880) died at 55 when Hugo was only 18 and he was 53 at the time he wrote Lowell. His mother had died when he was only twelve.

⁴ Although not mentioned in this letter there was also the fact that the family trust was managed by his brother in Danzig, and with the outcome of the war uncertain, he knew better than to count on it being there in the future.

It was in this fragile state of mind that on Thanksgiving Day Münsterberg would invite his daughter Margaret to accompany him on a walk from their home on 7 Ware Street to a house on 41 Bowdoin Street, the address where their family had first settled in the fall of 1892.⁵ Heading west from their home towards Quincy Street the father-daughter pair may first have passed by Emerson Hall, home to the Psychological Laboratory since 1906. The campaign for Emerson Hall had been launched from Münsterberg's 1901 report to the Visiting Committee of the Philosophical Division where he made his case "for a worthy monumental building at a quiet central spot of the Harvard yard...[and] whose upper story is built for a psychological laboratory so that under one roof all the philosophical work, metaphysical and ethical, psychological and logical, sociological and educational may be combined."⁶

Like his teacher in Leipzig Wilhelm Wundt and his early ally William James, Münsterberg since establishing himself at Harvard had maintained that psychology and philosophy belonged together despite the trend in American universities to divide them.⁷ In a speech on December 27, 1905 on the occasion of the Emerson Hall's opening and the meetings of the American Psychological and American Philosophical Associations, Münsterberg would defend this view invoking the authority of Wundt. In a letter he received from Wundt, he told his audience, the great German psychologist had written, "I

⁵ Margaret Münsterberg, *Hugo Münsterberg: His Life and Work* (New York: D. Appleton and Company, 1922): 297.

⁶ Hugo Münsterberg, "To The Visiting Committee of the Philosophical Division in Harvard University," 20 March 1901, Mss. Acc. 2498.1, HM-BPL.

⁷ His position on the relationship between philosophy and psychology while still in Freiburg was, perhaps ironically, more ambiguous than during his time in the States. See, for example, his discussion in: Hugo Münsterberg, "Über Aufgaben und Methoden der Psychologie," *Schriften der Gesellschaft für psychologische Forschung* 1 (1891): 270. For a detailed account of the complex relationship between philosophy and psychology at Harvard see: Bruce Kuklick, *The Rise of American Philosophy, Cambridge, Massachusetts, 1860-1930* (New Haven: Yale University Press, 1977). In Germany, by contrast, psychology remained the province of the philosophical faculty well into the 1930s.

believe that psychology not only now, but for all time, belongs to philosophy: only then can psychology keep its necessary independence." "These are the words of the father of experimental psychology," he followed, "[and] I hope they indicate the policy which Harvard University will adhere to forever."⁸

The unity of philosophy and psychology, however, was not to be. By 1912 the spirit of specialization had overtaken Emerson Hall and despite his best efforts to uphold this alliance the rift between the philosophers and psychologists only grew.⁹ As Münsterberg's student Floyd Allport—a pioneer in experimental social psychology—later recalled, there was "considerable tension overt and covert in those days between the top floor of Emerson Hall, where psychology...[was] housed, and the domain of the philosophers on the first floor."¹⁰ Though psychology remained under the jurisdiction of the Philosophical Division until 1934, for two decades his eventual successor E. G. Boring made it his personal "mission to rescue Harvard psychology from the philosophers."¹¹ Next on the agenda for Boring was to purge the Psychological Laboratory of applied research, work he believed not only brought scientific psychology into disrepute, but like his mentor E. B. Titchener contended that its technological orientation was at odds with the basic requirements of science.¹² For similar reasons, when asked as a Professor at

⁸ Hugo Münsterberg, *The Place of Experimental Psychology*, Vol. 2, in *Harvard Psychological Studies*, 33-34 (Boston: Houghton, Mifflin and Company, 1906).

⁹ Hugo Münsterberg to R. B. Perry, 5 December 1912, UAV 687.3, Box 1. Department of Philosophy, Harvard University Archives.

¹⁰ Floyd Henry Allport, *Floyd H. Allport*, Vol. 6, in *A History of Psychology in Autobiography*, 3-29 (Englewood Cliffs, NJ: Prentice-Hall, 1974). For Münsterberg's influence on Allport see: Sam Parkovnick, "Contextualizing Floyd Allport's Social Psychology," *Journal of the History of the Behavioral Sciences* 36, no. 4 (2000): 429-441.

¹¹ E. G. Boring, *Edwin Garrigues Boring*, Vol. 4, in *A History of Psychology in Autobiography*, ed. Carl A. Murchison, 27-33 (Worcester, MA: Clark University Press, 1930); S. S. Stevens, "Edwin Garrigues Boring, 1886-1968," *National Academy of Sciences* (Washington D.C., 1973), 46.

¹² John O'Donnell has written brilliantly on Boring's complex ideological and intellectual motivations for attacking applied psychology and philosophy in favor of an autonomous discipline

Clark University to support a new "course in the fundamentals and methods of psychotechnics," Boring did not hesitate to share his objections with his senior colleague G. Stanley Hall.¹³

In short, standing before Emerson Hall that Thanksgiving Day in 1916, Münsterberg and his daughter looked upon a house divided. With the United States on the brink of entering WWI, attacks on Münsterberg's politics and character became indistinguishable from criticism of his scholarly work. During a lecture on "Business and Psychology" one month earlier, for example, Münsterberg was forced to tell "his audience that he would not touch upon international politics and that none of his remarks should be construed as bearing upon the subject."¹⁴ Moreover, as the Harvard community geared up for war, the philosophers in particular took to political attacks on their former friend as the embodiment of the virulent influence of German *Kultur*.¹⁵ As Bruce Kuklick has written, Münsterberg became "merely a foil against which the Harvard community could display its ideological purity. He was forgotten with the American declaration of

of scientific experimental psychology. "The Crisis of Experimentalism in the 1920s: E. G. Boring and His Uses of History," *American Psychologist* 34, no. 4 (April 1979): 289-295. In one letter to Titchener, Boring would write that it may be possible, once he has tenure, "to mould the philosophers to my will." E. G. Boring to E. B. Titchener, 25 March 1924, Box 5. Edward Bradford Titchener Papers, 1887-1940, #14-23-545. Division of Rare and Manuscript Collections, Cornell University Libraries.

¹³ E. G. Boring to G. Stanley Hall, 25 October 1919, Hall-Sanford Correspondence with Faculty, Boring-Du, B1-2-5, G. Stanley Hall Collection, Clark University, Archives and Special Collections, Worcester, Massachusetts. Ultimately Boring consented to the course, but his letters make clear he believed his hands were tied and that he wished the course be treated as an experiment, not a new "sub-department" of psychology at Clark. Despite his well known opposition to applied psychology, Boring in fact published an applied paper in 1916, which employed moving pictures to study the psychology of testimony as influenced by age and gender. E. G. Boring, "Capacity to Report upon Moving Pictures as Conditioned by Sex and Age," *Journal of the American Institute of Criminal Law and Criminology* 6, no. 6 (March 1916): 820-834.

¹⁴ "Tells of Foolish Kinds of Waste, Prof. Munsterberg Discusses Business and Psychology at City Club," *The Boston Journal*, Vol. 83, no. 27115 (October 25, 1916), 5.

¹⁵ Harvard philosopher William Ernest Hocking publically condemned Münsterberg in the papers as well as in personal letters. W. E. Hocking to Münsterberg, 17 October 1916, bMS Am 2375 (4324). William Ernest Hocking papers, Houghton Library, Harvard University.

war and the subsequent opportunity for thinkers to show their patriotism in more virile ways."¹⁶

Back on the path to Bowdoin Street, another unavoidable structure redolent of simpler times was Dane Hall, the original location of the Psychological Laboratory established by William James. Selma Münsterberg remembered her husband's confused introduction to Dane Hall when shortly after they arrived Josiah Royce, pointing towards the student co-operative store (the Coop), exclaimed "*das Laboratorium*"! Recognizing the confusion in his new colleague's face he quickly added "*Oben*, upstairs!"¹⁷ It was also this location, adjacent to Harvard Square "where the electric cars cross from four directions, and where the hand-organs of the whole neighborhood make their *rendezvous*" that as already mentioned led Münsterberg to campaign for Emerson Hall.¹⁸ Mary Whiton Calkins, an active member of the laboratory during those early years affirms Münsterberg's diagnosis of Dane Hall as "infelicitously situated within hearing on the one side of the hand-organs and the street-car bells of Harvard Square and on the other of the often vociferous outbursts of...'elocution' classes." Nevertheless she would add, it was "the scene of absorbing work." Moreover, as Calkins recalled, not only had Münsterberg "swung the Laboratory doors open [to her]," but she was received with a "friendly, comradely, and refreshingly matter-of-fact welcome...from the men working in the

¹⁶ Bruce Kuklick, *The Rise of American Philosophy, Cambridge, Massachusetts, 1860-1930* (New Haven: Yale University Press, 1977): 446-447.

¹⁷ Selma Münsterberg, "Old Memories," *Harvard Graduates' Magazine* 40, no. 157 (June 1932): 331-342.

¹⁸ Hugo Münsterberg, "The New Psychology, and Harvard's Equipment for Teaching It," *The Harvard Graduates' Magazine* 1, no. 2 (January 1893): 201-209.

Laboratory as assistants and students, [for] whom the unprecedented incursion of a woman might well have been resented."¹⁹

From Dane Hall they next may have crossed over to Brattle Street towards Radcliffe College where both his daughters had been students and where he had delivered his first and soon to be last lecture.²⁰ He had forged a special bond with Radcliffe over the years and reports of his death in Radcliffe publications suggest that towards the end of his life he found there a far more sympathetic constituency than at Harvard. This has often been overshadowed in secondary literature by Münsterberg's sexist recommendation that women be excluded from the jury system.²¹ While such statements undoubtedly test the historian's tolerance, it has also too often been falsely assumed that we can gleam from such isolated examples his general attitude towards women and women's issues. Much work still needs to be done on Mary Whiton Calkins, Ethel Puffer, Kate Puffer, Frances Rousmaniere, Gertrude Stein, Eleanor Rowland and the many other women who carried out research and acted as subjects in the Harvard Psychological Laboratory during the formative years of its development.

Continuing on from Radcliffe through the Cambridge Common, the professor and his daughter at last would have arrived at their destination, the humble colonial-style house on Bowdoin Street. As Margaret recalled, her father stood there in front of the house for quite some time, "regretting the neglect into which it had fallen, and recalled the happy year spent within its walls and the cordial advances of colleagues and

¹⁹ Mary Whiton Calkins, *Mary Whiton Calkins*, Vol. 1, in *History of Psychology in Autobiography*, ed. Carl Murchison, 31-61 (Worcester, MA: Clark University Press, 1930).

²⁰ This tragic symmetry was not lost on the Radcliffe community where this special relationship was proudly noted. Interestingly, despite all the controversy Münsterberg had inspired the Radcliffe newsletter obituary was far more sympathetic and personal than that featured in most official Harvard publications.

²¹ Hugo Münsterberg, *Psychology and Social Sanity* (New York: Doubleday, Page & Co., 1914): 198.

neighbors."²² Those carefree times were indeed long gone. WWI had changed everything. He had become an outcast in his own community, the target for anti-German rabble-rousers, and favorite topic for yellow journalism.²³ The most famous incident of the latter category occurred in 1914 when an unstable Harvard alumnus offered ten million dollars to the University to terminate Münsterberg's appointment because of recent accusations that he was a paid spy for the Kaiser. In the end he had neither the money nor the evidence to support this demand. Such actions, however, were not without consequence. When German U-boats shot down the *Lusitania* one year later the negative press surrounding Münsterberg and his ties to the German government intensified.²⁴ For a bitter taste of anti-German sentiment in the years before the United States entered WWI, one could do no better than to study the hate mail found in Münsterberg's archives.

It was after returning from this stroll that Münsterberg began outlining his autobiography-never-to-be under the provisional title *Twenty-Five Years in America*. In the only chapter he would complete he set out to tell the story of his journey from Freiburg where his academic life began to Harvard where it ultimately would end.²⁵ Unbeknownst

²² Margaret Münsterberg, *Hugo Münsterberg: His Life and Work* (New York: D. Appleton and Company, 1922), 297.

²³ While WWI intensified attacks on Münsterberg's all-too-German character, such prejudicial criticisms reached back to his earliest days at Harvard. Somewhere around 1909, however, they began to take a different tone when Münsterberg argued for a policy of moderation as opposed to the prohibition of alcohol. Shortly after he was accused of being on the payroll of the German-American Brewers like Pabst and Anheuser-Busch.

²⁴ On the Münsterberg's precarious position in German-American politics see: Phyllis Keller, *States of Belonging: German-American Intellectuals and the First World War* (Cambridge, MA: Harvard University Press, 1979); Clifford Barger, Elin Wolfe Saul Benison, *Walter B. Cannon: The Life and Times of a Young Scientist* (Cambridge, MA: The Belknap Press of Harvard University, 1987), 385-388.

²⁵ There were two years that Münsterberg was only nominally Director of the Psychological Laboratory. First, during the 1895-96 academic year when he returned to Freiburg before

to him at the time that end was very near. On December 16, 1916, Münsterberg trudged through the snow on a path not unlike the one he had taken with his daughter from his Ware Street home to Radcliffe where he was to deliver his usual morning lecture on psychology. When he arrived at the Bowne and Nichols building on the corner of Brattle Street and Appian Way he was met by his assistant Harold E. Burt. After taking a moment to catch his breath from snowy trek he stood before his class and began his lecture. According to Burt not six sentences in he fell to the floor.²⁶ A local physician was rushed to the scene but Münsterberg was declared dead fifteen minutes later. The probable cause of death was a cerebral hemorrhage.²⁷ By the end of the day the story was front-page news in evening editions of newspapers across the country. By mid-January 1917, hundreds of articles eulogizing and criticizing Münsterberg would appear in newspapers covering at least three continents.

Münsterberg's dramatic death at the height of political tensions between the United States and Germany explains a great deal about why so many American psychologists sought to distance themselves from his legacy. Moreover, without Münsterberg leading the way the movement, the meaning and boundaries of psychotechnics in North America became blurred. Whereas Münsterberg had argued for a subtle distinction between applied psychology and psychotechnics whereby the latter referred specifically to the specialized application of psychological means to given ends on the model of engineering and the former the more general academic investigation of

deciding to remain at Harvard permanently and the 1910-11 academic year, which he spent as an exchange professor in Berlin.

²⁶ Harold E. Burt, interview, AHAP Collection of Oral Histories, Box 1, OH4, Folder 5 Burt and Pressey, Archives of the History of American Psychology, University of Akron, Ohio.

²⁷ "Prof Muensterberg Dead." *Boston Daily Globe*. December 16, 1916.

practical problems, by the 1950s this distinction was largely lost in the English-speaking world.

There were, however, a few exceptions in Münsterberg's students. Walter Van Dyke Bingham, for example, who is generally credited with founding the first autonomous Department of Applied Psychology at the Carnegie Institute of Technology, had sought Münsterberg's counsel in developing his program.²⁸ "Before many weeks have passed," he wrote Münsterberg in February 1915, "I shall hope for the opportunity for a good chat with you regarding the lines along which the Carnegie program should be mapped out, and I shall count on much of helpful suggestion, for I know how deeply you have at heart the development of psycho-technology."²⁹ In a letter to President Hammerschlag of the Carnegie Institute Bingham discussed among other potential faculty Harold Burt, noting that among his special qualifications for such work was his recent research for a "New York street lighting corporation, on the affects of various distributions of sources of illumination on attention, with referent to the liability to street accidents."³⁰

Like Münsterberg, Bingham grappled with the question of the boundary in psychology between science and technology. Following Münsterberg's lead Bingham maintained, "Applied psychology in the broadest sense is *psychology in the service of ends other than its own*." He therefore concluded that "prediction and control for practical ends" was

²⁸ Bingham worked under Münsterberg in the Harvard Psychological Laboratory between 1909 and 1910. Hugo Münsterberg, "The Psychological Laboratory," *Reports of the President and the Treasurer of Harvard College 1907-08* (Cambridge MA: Harvard University, 1909): 259-260.

²⁹ W. Van Dyke Bingham to Münsterberg, 13 February 1915. Mss. Acc. 1563, HM-BPL. See also: Walter Van Dyke Bingham to Münsterberg, 15 January 1916. Mss. Acc. 1563, HM-BPL.

³⁰ Walter Van Dyke Bingham to Arthur A. Hammerschlag, 22 April 1915. Box 1, Folder 0039. Walter Van Dyke Bingham papers, Carnegie Mellon University, Pittsburgh, PA.

by definition the province of "psychotechnology."³¹ Although Bingham found the term "psychotechnology" useful in clarifying the relationship between psychological theory and practice and distinguishing the roles of academician from engineer, the enduring legacy of psychotechnics is not in the terminology but in the diverse sites of psychotechnical applications. This dissertation is but the first step towards such a history that traces the influence of psychology in everyday life not as an abstract discourse or immaterial knowledge regime, but through examining the means by which psychological expertise is employed towards solving practical problems in the world.

Moreover the history of psychotechnics requires a transnational perspective that this dissertation has only begun to address. With this in mind I conclude with the words not of Münsterberg, but of William Stern who first coined the term *Psychotechnik* in 1903. At the Seventh International Conference for Psychotechnics in Moscow in 1931, Stern delivered a lecture on "The Personal Factor in Psychotechnics and Practical Psychology." Unlike Münsterberg who died with faith in the movement he had worked so hard to launch, Stern by 1931 was ready to disavow himself of the association. "The term 'psychotechnician' is uttered with something of a disdainful tone," he told his audience, "due to the implicit or explicit belief that psycho-technicians not only intercede but interfere in the lives and rights of the individuals they deal with. The feeling is that psychotechnicians degrade persons by using them as a means to others' ends."³² It is never a good sign for a movement when its originator disavows it.

³¹ Walter Van Dyke Bingham, "On the Possibility of an Applied Psychology," *Psychological Review* Vol. 30, No. 4 (July 1, 1923): 289-305.

³² Translation from: James T. Lamiell, *Beyond Individual and Group Differences: Human Individuality, Scientific Psychology, and William Stern's Critical Personalism* (Thousand Oaks: Sage Publications, 2003): 76; William Stern, "Der personale Faktor in Psychotechnik und praktischer Psychologie," *Zeitschrift für angewandte Psychologie* 44 (1933): 52-63.

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AL-HUA	Records of the President of Harvard University, Abbott Lawrence Lowell, 1909-1933 (UAI 5.160). Harvard University Archives, Cambridge, Mass.
AR-HHU	Abraham Aaron Roback papers (MS Am 2518). Houghton Library, Harvard University, Cambridge, Mass.
CE-HUA	Records of the President of Harvard University, Charles W. Eliot, 1869-1930 (UAI 5.150). Harvard University Archives, Cambridge, Mass.
EBT-CU	Edward Bradford Titchener papers, 1887-1940 (#14-23-545). Division of Rare and Manuscript Collections, Cornell University Libraries, Ithaca, NY.
GSH-CU	G. Stanley Hall papers. Archives and Special Collections, Robert H. Goddard Library, Clark University, Worcester, MA
HB-AHAP	Harold E. Burtt papers. Archives of the History of American Psychology, University of Akron, Ohio.
HM-BPL	Hugo Münsterberg Collection, 1890-1916. Rare Books and Manuscripts, Boston Public Library, Boston, Mass.
HM-FUA	Universitätsarchiv der Albert-Ludwigs-Universität, Freiburg im Breisgau.
HM-PC	Hugo Münsterberg Pamphlet Collection, Widener Library, Harvard University, Cambridge, Mass.
PH-HUA	Paul Henry Hanus papers (HUG 4447.5). Harvard University Archives, Cambridge, Mass.
RM-Y-YU	Robert Mearns Yerkes papers (MS 569). Manuscripts and Archives, Yale University Library, New Haven, CT.

WJ-HHU William James papers (MS Am 1092.9-1092.12). Houghton
Library, Harvard University, Cambridge, Mass.

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