

CHAPTER III

A NEW TOOL TO ASSESS APTITUDE--PSYCHOLOGISTS CREATE THE INTELLIGENCE TEST

Introduction

Educators who sought to test aptitude rather than knowledge in making decisions on college admissions soon had instruments that they thought preferable to the "new plan" tests of the College Board. In the second two decades of this century, the emerging discipline of professional experimental psychology produced tests that purported to measure aptitude directly. By the middle of the 1920s, colleges and universities commonly used various forms of these new tests as at least a part of the criteria for college admissions.

The 1916 "new plan" tests required students to reason with and critically evaluate subject matter from academic disciplines. In contrast, the new intelligence tests required candidates to perform tasks that only made sense in the context of both 1) the rapid emergence of the discipline of experimental psychology and 2) the changes in psychometric theory occurring both in Europe and in the United States.

The introduction of intelligence tests in college admissions was a part of larger changes within our society. The nexus of various ideas, values, and events that led to the introduction of intelligence tests in general and then to their specific use in college admissions includes the psychologist's conscious efforts to become "professional," the country's increasing deference toward "experts," a national preoccupation with quantification, the need for efficiency in a "Progressive" society generally and specifically the need for efficiency in an effort to win a world war.

Robert M. Yerkes, Edward L. Thorndike, Herbert Toops, Andrew MacPhail and Lewis Terman, the leaders in introducing intelligence tests in higher education, were also leaders among the discipline of psychology generally. These men, along with the rank and file psychologists of the 1920s who would administer these tests, reflected broad national social concepts and professional values. Furthermore, these psychologists were products of an inchoate discipline engaging in unprecedented wartime activities and received by a nation in what satirist Stephen Leacock described at the time as "an outbreak of psychology," and historian William E. Leuchtenberg later called a "National Mania."¹

The same mixture of ideas and events that made the introduction of intelligence tests a very rapid process also made it a process marked by controversy. Immediately after the end of World War I, a national debate emerged over the use of standardized intelligence tests. Initially this debate was an internal one, within the profession of psychology; by 1923, however, the controversy had spilled over into the pages of the New Republic where Walter Lippmann published his six-part series criticizing the intelligence testing movement.

The roots of this debate, roots that both determined the issues that were seized upon by the contenders and later influenced the parameters of debates about the Scholastic Aptitude Test, are found in the historical development of the profession of psychology during the decades before World War I and in the early history of intelligence testing itself. As Daniel Boorstin pointed out, the mental test in the United States was a by-product of two twentieth-century institutions:

¹ Stephen Leacock, "A Manual of the New Mentality," Harpers Monthly Magazine 148 (1924):472. See also: William E. Leuchtenberg, The Perils of Prosperity, 1914-1932 (Chicago: University of Chicago Press, 1955), p. 164. Leuchtenberg considers the intelligence tests even more important in popularizing psychology than was psychoanalysis.

mass education and the mass army because, "both of these expressions of a democratized society encouraged quantitative ways of thinking."²

The mental test was also the result of the purposeful efforts of late nineteenth and early twentieth-century psychologists to professionalize their discipline. Psychologists brought intelligence testing to the public during a period when the inchoate discipline of psychology still lacked some of the attributes of a mature profession. In large part, the participants, content, and tone of the heated controversies in the early 1920s were a result of psychologists administering their tests to masses of people before they had resolved major intra-professional theoretical issues.

Recently historians have focused on the general process of professionalization in the late nineteenth century.³ Simultaneously, numerous psychologists, educators, and a few historians have examined the issues surrounding early intelligence testing.⁴ These themes have not, however, been

² Daniel J. Boorstin, The Americans: The Democratic Experience, (New York: Random House, 1973), p. 220. For further discussions of the relationship of World War I to the introduction of intelligence tests, see: David O. Levine, The American College and the Culture of Aspiration 1915-1940, (Ithaca: Cornell University Press, 1986), p. 32; and John C. Burnham who observes that "World War I transformed the place of psychology in American Culture." John C. Burnham, How Superstition Won and Science Lost: Popularizing Science and Health in the United States (New Brunswick: Rutgers University Press, 1987), p. 95.

³ Thomas L. Haskell, The Emergence of Professional Social Science: The American Social Science Association and the Nineteenth-Century Crisis of Authority (Urbana, Illinois: University of Illinois Press, 1977). See also: Mary O. Furner, Advocacy and Objectivity: A Crisis in the Professionalization of Social Science (Lexington: The University of Kentucky, 1975; and Burton Bledstein, The Culture of Professionalism (New York: Random House, 1976.)

⁴ See: Jenne K. Britell, "Never Quite a Public Dialogue: The Discussions of Testing in American Education, 1897-1964." (Ph.D. Dissertation, Columbia University, 1980). Britell specifically examines the nature of discussions about testing--both aptitude and achievement; she contends that the discussion of testing never reached the level of a "sustained public dialogue" because the discussion remained outside the social mechanisms that allowed for true dialogue. See also: Thomas Morley Camfield, "Psychologists at War: The History of American Psychology and the First World War." (Ph.D. Dissertation, the University of Texas at Austin, 1969), pp. 1-182, and, Michael M. Sokal, ed., Psychological Testing and American Society: 1890-1930 (New Brunswick: Rutgers University Press, 1988).

associated. This chapter combines these themes. The manner in which the process of the professionalization of psychology influenced the controversy surrounding intelligence testing is important to an understanding of the disputes of the 1920s. The Scholastic Aptitude Test, one of the most important of the new "intelligence tests," can best be understood in this context.

The Significance of a "Quantified Society?"

By the beginning of the twentieth century, Americans had been well prepared for the advent of linear measurement of intelligence through psychometrics. Numbers as evidence of magnitude appeared everywhere. Progressives in general and progressive educators in particular recognized the strength of numbers. The emerging social sciences depended on, and thus fostered the use of, quantitative data.⁵ Further, the social scientists prescribed quantification for the citizenry. Karl Pearson, who developed important parts of the statistical foundation of psychometrics, advised that "science, rather than philosophy, offers the better training for modern citizenship."⁶ Historian Patricia Cline Cohen notes that, in the late nineteenth century, "what was counted was what counted." She contends that this "play on words drives home the point that people generally count only the things that matter. Each new instance of enumeration testifies to a concern about the prevalence of what is counted."⁷ Americans had been consistently exposed to discussions of differences among groups. Further, they were prepared to believe that numbers could explain

⁵ Boorstin, The Americans: The Democratic Experience, p. 195.

⁶ Karl Pearson, The Grammar of Science (London: Adam and Charles Black, 1892; 1900), p. 19 Cited in: JoAnne Brown "The Semantics of Profession: Metaphor and Power in the History of Psychological Testing, 1890-1929." Ph.D. Dissertation, The University of Wisconsin at Madison, 1985. p. 210.

⁷ Patricia Cline Cohen, A Calculating People: The Spread of Numeracy in Early America (Chicago: The University of Chicago Press, 1982), p. 207.

those differences. Even the popular press addressed the theme; as early as 1904, Gustave Michaud used and distorted quantitative data to rank different ethnic groups.⁸ Thus, Americans were ready to quantify; they accepted that there were clear differences among individuals; and they increasingly believed that quantifiable intelligence mattered.

Testing and the Professionalization of Psychology

In the last three decades of the nineteenth century, William James at Harvard and Wilhelm Wundt at the University of Leipzig both called for the development of the discipline of psychology as an empirical science.⁹ By the 1890s scholars in Europe and the United States had established solid and formal foundations of a "scientific psychology." This foundation included the appointment of G. Stanley Hall to a lectureship in psychology at Johns Hopkins University, his subsequent founding of the first psychological laboratory in the United States, and his initiation of the American Journal of Psychology.¹⁰ Moreover, in 1892 a group of psychologists founded the American Psychological Association.

Persistent pursuit of professionalization was a dominant theme among psychologists in the last decades of the nineteenth century.¹¹ In some ways this pursuit had been quite successful by the beginning of World War I.

⁸ Gustave Michaud, "The Brain of the Nation," Century Magazine 69, no., 11 (November 1904):41-46. Michaud attempts to ascertain where "the most intellectual people of our country-- those who yield the highest percentage of ability" live. He noted the inferiority of various racial and ethnic groups and indicated that the "percentage of talent" in large cities is largely caused by the ethnic groups that surround that city. These are themes that would be continued in the postwar period with increasing "support" from the quantitative data supplied psychometrics.

⁹ For a brief, clear discussion of the growth of scientific psychology, "Psychology Proper" in chapter "Intelligence:Earlier Views" see pp. 14-17 in Howard Gardner, Frames of Mind: The Theory of Multiple Intelligences (New York, Basic Books, 1985).

¹⁰ Ibid.

¹¹ Ibid., p.33

Psychologists had taken several of the steps that scholars consider to be typical of the process of professionalization; it had begun to establish itself as a distinct academic discipline; it had formed a professional organization; and it had developed a professional journal.¹² But, in other ways, psychology as a discipline was still pre-professional. First, it lacked accepted parameters of its scholarly concerns; and second, it had only very inadequate theoretical foundations.¹³ In the 1920s, then, the pursuit of a "new psychology" was no longer new, but the discipline was still rapidly emerging and certainly not yet mature.

The Early Heritage of Intelligence Tests

To call for an empirical science of psychology was a relatively simple matter; however, to determine its scope, distinguish it from other disciplines, clarify its underlying assumptions and develop a scientific methodology would all prove to be extremely difficult tasks.¹⁴ One of the activities that promised to be most productive for the psychologists who were attempting to professionalize their discipline was mental testing. As Daniel Boorstin notes, the predilection for statistical precision and quantification as the basis for their new scientific psychology was nowhere expressed more vividly than in the psychologists' attempts to measure intelligence.¹⁵ James McKeen Cattell, as early as 1890, had stated that the goals of the new psychology were to "ally psychology and its

¹² Donald L. Mills and Howard M. Volmer, Professionalization (Englewood Cliffs, N.J.: Prentice Hall, 1966), pp. v-ix. The significant growth of educational psychology is indicated by Columbia's Teacher's College making its study a requirement for all doctoral candidates in 1917. Geraldine Joncich, The Sane Positivist: A Biography of Edward L. Thorndike (Middletown, Conn.: Wesleyan University Press, 1968), p. 463.

¹³ Beardsley Ruml, "The Need for an Examination of Certain Hypothesis in Mental Tests," The Journal of Philosophy, Psychology and Scientific Methods 17 (January 29, 1920):58.

¹⁴ Camfield, "Psychologists at War," pp. 3-11.

¹⁵ Boorstin, The Americans: The Democratic Experience, p. 219.

methods with the natural and exact sciences rather than philosophy; to replace introspection and verbal description by experiments and measurements."¹⁶

Mental measurement as a significant activity within the discipline of psychology caught on quickly. Psychologists, seeking to distinguish themselves from the non-quantitative discipline of philosophy, were drawn to this form of measurement because of its apparent precision.¹⁷

The emergence of the intelligence testing movement within the United States represented the convergence of three European traditions of thought with others that were distinctly American. According to Kimball Young, a psychologist writing in 1923, the testing movement drew from German, English and French traditions. From Germany and the work of Wundt came the first efforts to analyze mental processes scientifically. In his laboratory at Leipzig, Wundt engaged in detailed studies of speed of perception and reaction time.¹⁸ Although his mental chronometry has long been thoroughly discredited, his approach laid one cornerstone of the mental testing movement by transferring the study of the mind out of speculative philosophy into an empirical and quantitative science.¹⁹

¹⁶ James McKeen Cattell, "Mental Tests and Measurements," Mind 15 (1890):374.

¹⁷ Walter B. Pillsbury, "The New Developments in Psychology in the Past Quarter Century," Philosophical Review 26 (1917):58-59

¹⁸ Kimball Young, "The History of Mental Testing," The Pedagogical Seminary and Journal of Genetic Psychology 21 (March, 1923):6. [For an excellent discussion of the European influences on modern experimental psychology, see. Richard Littman's "Social and Intellectual Origins of Experimental Psychology," in Eliot Hearst, ed., The First Century of Experimental Psychology (Hillsdale, New York: 1979), 39-86. Littman demonstrates how "the organization of higher education and science in Germany led to the development of a cadre of scientist-teachers whereas in France and Britain that did not happen." (p. 83). Further, he argues that "the particular topics that characterized the early psychology--sensory processes, association, reaction time, and psychophysics--were a direct reflection of the medically trained scientists who became the first systematic experimenters in psychology." Ibid.

¹⁹ Read D. Tuddenham, "The Nature and Measure of Intelligence," In Leo Postman, Ed., Psychology in the Making: Histories of Selected Research Problems (New York: Alfred A. Knopf, 1962), p. 473.

Wundt's rigorous and experimental approach attracted several Americans who later contributed to the development of the discipline of psychology in general and intelligence testing in particular.²⁰ Among them were Hall and Cattell. As systematic and empirical as it was, the German psychological establishment was, nevertheless, essentially uninterested in the study of individual differences. Wundt and his colleagues had sought to discover general fundamental laws that govern human minds. The intelligence testing movement still lacked one crucial requisite--an interest in individual differences for their own sake.²¹ The British evolutionists provided this.

As Russell Marks pointed out, whether an observer of two individuals notices the similarities as opposed to the differences is a reflection of the values of the observer.²² Evolutionists naturally were seeking to recognize individual differences that might form the basis of future changes in the species.²³ The British evolutionists were led by Francis Galton, who, following the publication of On the Origin of Species by his cousin Charles Darwin, became interested in the inheritance of mental differences. Galton was the first to make explicit the idea that human beings differ radically in intelligence not only with respect to the distinction between the feebleminded and the normal, but also at the other end of

²⁰ For a discussion of Wundt's influence on American psychology and the later American ambivalence toward Wundt, see R.W. Rieber "Wundt and the Americans" pp. 137-151 in R.W. Rieber, Ed., Wilhelm Wundt and the Making of Scientific Psychology (New York: Plenum Press, 1980.)

²¹ Tuddenham, "The Nature," p. 474. See also: Daniel J. Kevles, In the Name of Eugenics: Genetics and the Uses of Human Heredity, (New York, Alfred A. Knopf, 1985).

²² Russell Marks, "Providing for Individual Differences: A History of the Intelligence Testing Movement in North America," Interchange 7 (1976-77):5.

²³ Mark H. Haller, Eugenics: Hereditarian Attitudes in American Thought (New Brunswick: Rutgers University Press, 1963), Chapter I.

the scale.²⁴ Moreover, Galton and two of his students, Karl Pearson and Charles Spearman, contributed significantly to the statistical tools that form the basis of modern intelligence testing.²⁵

The third and most direct European influence on testing in the United States came from France through the work of Alfred Binet.²⁶ Just as the advanced statistical formulas of Spearman and Pearson were contributing to the apparent objectivity and precision of the "science" of mental measurement, Binet was demonstrating the possibility of extending the new science to a wide range of social and educational activities.²⁷ Commissioned in 1904 by the French minister of public education to develop ways of identifying elementary students who needed some form of special education, Binet developed a test which sought to determine whether an individual child was reasoning at a level of sophistication appropriate for his age group. By 1908 Binet had developed the Intelligence Quotient scale that, essentially unmodified, is used today.²⁸

²⁴ David A. Goslin, The Search for Ability: Standardized Testing in Social Perspective (New York: The Russell Sage Foundation, 1963.), p.23. For a discussion of Galton's Anthropometric Laboratory, see: Raymond Fancher, The Intelligence Men: Makers of the I.Q. Controversy (New York: W.W. Norton, 1985), pp. 41-44. For the College Board's treatment of the influence of early psychologists, see: Carl Campbell Brigham, "The Scholastic Aptitude Test of the College Entrance Examination Board," in: College Entrance Examination Board, The Work of the College Entrance Examination Board 1901-1925 (New York: Ginn and Company, 1926), pp. 49-50.

²⁵ Young, "The History of Mental Testing," p.11.

²⁶ C.W. Odell, "Who Have Contributed Most to the Educational Measurement Movement?" School and Society 29 (1929):752. [Odell demonstrated that Lewis M. Terman, whose intellectual debt to Binet is clear, was the leading proponent and advocate of testing. In contrast, Stephen J. Gould contends that the work of Binet was bastardized by American psychologists: "If Binet's principles had been followed, and his tests consistently used as he intended, we would have been spared a major misuse of science in our century." Stephen J. Gould, The Mismeasure of Man (New York: W.W. Norton, 1981) p. 155. For a clear, brief discussion of Binet's work and a comparison of that work to Galton's, see: Fancher, The Intelligence Men, pp. 49-83.

²⁷ Tuddenham, "The Nature," p. 483.

²⁸ *Ibid.*, p. 485.

In the second decade of the twentieth century, following the deaths of both Galton and Binet in 1911, momentum within the movement for development of tests shifted to the United States.²⁹ Two institutions became the focus of intelligence testing in this country. The first was Columbia University, where Cattell, after leaving his studies with Wundt at Leipzig, became head of the psychology department. As early as 1890 Cattell had observed that:

Psychology cannot attain the certainty and exactness of the physical sciences unless it rests on a foundation of experiment and measurement. A step in this direction could be made by applying a series of mental tests and measurements to a large number of individuals.³⁰

Cattell's work combined the emphasis of his mentor, Wundt, on measurement of perception and simple motor tasks, with the British emphasis on individual differences.³¹

The second major center of interest in intelligence testing was Clark University, where G. Stanley Hall served as president from 1888 to 1920. Although not directly involved in testing himself, Hall had a particularly strong interest in developing psychology as a useful discipline.³² He established Clark as a significant training institution for psychologists who would be the leaders in

²⁹ Young, "The History of Mental Testing," pp. 36-39

³⁰ James McKeen Cattell, "On Mental Tests," In, Richard J. Herrnstein and Edwin G. Boring, eds. A Source Book in the History of Psychology. (Cambridge, Mass.: Harvard University Press, 1966), p. 424.

³¹ Goslin, The Search for Ability, p. 25 see also: Fancher, The Intelligence Men, pp. 44-49.

³² Boorstin, The Americans: The Democratic Experience, p 220.

this field.³³ Most significant among these were Henry H. Goddard, Lewis M. Terman, and Edwin G. Boring.³⁴

Working at the Vineland Training School to gain data on the feebleminded, Goddard was the first to introduce the Binet tests in this country. In 1911 this Clark University trained psychologist published a unilinear classification of mental deficiency then proceeded to develop a taxonomy for the mentally deficient. His classification ranged from "idiots," who had mental ages of from three to seven; to "moron," who were "high grade defectives," and had mental ages of up to twelve.³⁵ As Stephen Jay Gould noted, "Goddard may have been the most unsubtle hereditarian of all. He used his unilinear scale of mental deficiency to identify intelligence as a single entity, and he assumed that everything important about it was inborn and inherited in family lines."³⁶ Moreover, Goddard was one of the first to see the possible uses of the tests in a eugenics movement. Daniel Boorstin pointed out that, "Goddard saw the mental tests as the gateway to utopia, opening new worlds of eugenics and social reform."³⁷

Although Goddard brought Binet's work to the United States, it was Lewis Terman who saw the broad potential for intelligence testing and who extended Binet's work to include mass testing of large portions of the American

³³ Tuddenham, "The Nature," p. 489. See also: Dorothy Ross, "The Development of the Social Sciences," in, Alexandra Oleson and John Voss, Eds., The Organization of Knowledge in Modern America, 1860-1920 (Baltimore: Johns Hopkins Press, 1979), p. 121.

³⁴ Young, "The History of Mental Testing," p. 31. For a discussion of the impact of G. Stanley Hall on the intellectual development of these "new psychologists," see: Lewis Terman, "Trails to Psychologists," in, Carl Murchison ed., A History of Psychology in Autobiography (Worcester, Mass.: Clark University Press, 1930-1952), pp. 314-317.

³⁵ Gould, The Mismeasure of Man, p. 160

³⁶ Ibid.

³⁷ Boorstin, The Americans: The Democratic Experience, p 222.

population.³⁸ After leaving Clark University, where he had developed a specific interest in testing the intelligence of gifted children, Terman joined the psychology department of Stanford University.³⁹ At Stanford his interest in testing broadened to encompass far larger segments of the population. Beginning his work during a period that was strongly influenced by the progressive reformers, Terman was anxious to use his new science to improve society.⁴⁰ In 1914 he wrote, "The children of today must be viewed as the raw material of a new state; the schools as the nursery of the nation."⁴¹ He actively promoted the idea that tests to determine a person's intellectual capacities could lead to improved mental health for all individuals. These instruments could channel people into professions that would be suited for their mental level and aptitudes and, thus, would enhance the efficiency of production and decision making within society. Terman declared:

Industrial concerns doubtless suffer enormous losses from the employment of persons whose mental ability is not equal to the tasks they are expected to perform . . . any business employing as many as 500 or 1000 workers . . . could save several times the salary of a well-trained psychologist.⁴²

The increasingly applied aspects of mental testing enhanced its importance to the fledgling discipline of psychology. The new psychologist saw a significant role for their science in the betterment of mankind. Psychology as a

³⁸ Odell, "Who Have Contributed," p. 752.

³⁹ Terman, "Trails to Psychology," p. 313.

⁴⁰ For a Discussion of Terman a bridge between Victorian and Progressive ideals, see John Carson. Chapter of Ph.D. Dissertation in Progress for Princeton University. Delivered with this author as part of a Visiting Scholar Lecture March 29, 1985. Transcript on File at E.T.S. Archives.

⁴¹ Lewis M. Terman and Ernest B. Hoag. Health Work in the Schools (Boston: Houghton Mifflin, 1914), p. 4.

⁴² Lewis M. Terman, The Intelligence of School Children (Boston: Houghton Mifflin, 1919), p. 282.

profession was seeking a goal that was "no less than control over human conduct corresponding to that of physical science over the material world."⁴³

New Instruments with No Theoretical Underpinning

Interested in a wide variety of potential applications, the new psychologists sought to demonstrate their usefulness in many areas. However, in most respects, applied psychology in the decade following 1911 made its advances without the underpinning of pure psychology or theoretical formulations.⁴⁴ The testers proceeded undaunted in administering their tests and reifying their results without having defined the essential elements or attributes that their tests measured.⁴⁵ The clearest example of applied psychology that overreached the foundations of theoretical psychology was in the use of intelligence testing in World War I. Before the war, interest in intelligence tests among psychologists was limited and there was significant public resistance to them. Tests were exclusively individual and administered, at least in theory, only by trained psychologists. The tests were quite expensive and primarily used with the mentally handicapped. Daniel Kevles contends that, because intelligence tests were associated with the assessment of mental deficiency, "many people assumed that testing a child amounted to questioning his or her intelligence."⁴⁶

Intelligence Testing in World War I

World War I presented the applied psychologists with a tremendous opportunity to demonstrate that their young profession was of great practical

⁴³ James McKeen Cattell, "Our Psychological Association and Research." Science 45 (1917):283-284.

⁴⁴ Pillsbury, "The New Developments," pp. 57-59.

⁴⁵ Ruml, "The Need for an Examination," p. 58.

⁴⁶ Kevles, In the Name of Eugenics, p. 80.

value to the nation.⁴⁷ More importantly, it provided the new discipline, which was equating rigor and science with quantification, with a chance to gather data in unprecedented amounts and, thus, establish the scientific basis of its work.⁴⁸

Robert M. Yerkes was the first to recognize the opportunity for psychology that was provided by the war in Europe. As president of the American Psychological Association, and as one of the pioneers in the applied psychology of testing, Yerkes acutely felt the need for an arena in which the new discipline could establish itself.⁴⁹ By the last week in March 1917, with America's entry into the conflict imminent, Yerkes began to mobilize his profession for war.⁵⁰ His activities were bold and unequivocal.

Working through the Council of The American Psychological Association, Yerkes proposed eleven concrete ways in which psychologists could assist the military effort. The suggestions ranged from developing recreational activities that would enhance soldiers' mental health to training homing pigeons.⁵¹ Ultimately the military only accepted three activities: mental examination of all recruits, selection of men for tasks demanding special skills, and assistance with problems of aviation. Even these activities were based on theories and

⁴⁷ Daniel J. Kevles, "Testing the Army's Intelligence: Psychologists and the Military in World War I," Journal of American History, 55 (December, 1968):566.

⁴⁸ Camfield, "Psychologists at War," pp. 77-101. See also: Gould, The Mismeasure of Man, p. 193, and Kevles, "Testing the Army's Intelligence," p. 565.

⁴⁹ Kevles, "Testing the Army's Intelligence," p. 565. See also: Richard T. von Mayrhauser, "The Manager, the Medic, and the Mediator: The Clash of Professional Psychological Styles and the Wartime Origins of Group Mental Testing," in Michael M. Sokal, ed., Psychological Examining and American society: 1890-1930 (New Brunswick, N.J.: Rutgers University Press, 1987), pp. 128-157.

⁵⁰ Camfield, "Psychologists at War," p. 84. See also: Kevles, In the Name of Eugenics, p. 81. Kevles maintains that Yerkes' desire to professionalize his discipline stemmed in part from Harvard denying him tenure in 1916 because the administration considered his field unworthy.

⁵¹ Camfield, "Psychologists at War," p. 104.

instruments that were not well-developed. Daniel Kevles has asserted that prior to World War I, few Americans, even psychologists, had faith in the intelligence tests. Within the profession there was often skepticism; outside the profession there was frequently hostility.⁵² Yerkes himself, writing in the March 1917 Journal of Applied Psychology, stated that both the point scale method (his own) and the Binet method of measuring intelligence were "extremely crude and obviously improvable."⁵³ Thus, equipped with little conceptual underpinning and extremely crude instruments and proceeding with audacity, the psychologists became, in the words of Stephen Jay Gould, "part of the retinue of camp followers."⁵⁴ Psychologists would contribute the inchoate and esoteric notions of their new discipline to the war effort because, according to Lewis Terman, "If the army machine is to work smoothly and efficiently, it is as important to fit the job to the man as to fit the ammunition to the gun."⁵⁵

In May of 1917, Yerkes called together a group of prominent psychologists, including Terman, Goddard and Boring.⁵⁶ Working with a prototype of a group test supplied by one of Terman's former graduate students,

⁵² Kevles, "Testing the Army's Intelligence," p. 566.

⁵³ Robert M. Yerkes, "The Binet Versus the Point Scale Method of Measuring Intelligence," Journal of Applied Psychology 1 (1917):111. [Cited in Camfield, "Psychologists at War," p. 92]

⁵⁴ Gould, The Mismeasure of Man, Page 193.

⁵⁵ Cited in Kevles, "Testing the Army's Intelligence," p. 81. For a discussion of the range of motivations among the psychologists enrolled in the army testing effort, see: von Mayrhauser, "The Manager, the Medic, and the Mediator," in Sokal, ed., Psychological Examining and American Society, pp. 128-157. See also: Richard T. von Mayrhauser "Elimination as Prediction: The Need for Speed, the Standardization of Proficiency Tests, and the Mythicizing of Group Intelligence Tests: 1917-1923" a Paper prepared for and delivered at the 1988 Annual Meeting of Cheiron, the International Society for the History of the Behavioral and Social Sciences. Princeton, New Jersey, June 18, 1988.

⁵⁶ For a discussion of Yerkes' motivation in this testing see James Reed, "Robert M. Yerkes and the Mental Testing Movement." in Michael M. Sokal, ed. Psychological Examining, pp. 75-94.

Arthur Otis, the committee rapidly adapted the Stanford version of the Binet test, an individually administered test, so that it could be given in a group format.⁵⁷ Within two weeks, the psychologist felt they had workable instruments consisting of the Alpha test, which would be administered to those who could read, and the Beta test, explained through pantomime and illustration, for illiterates and non-English speakers.⁵⁸ The Alpha test clearly reflected its heritage from the Binet Test. The psychologists presented the examinees with eight sections: following oral directions, arithmetical problems, practical judgment, synonyms/antonyms, disarranged sentences, number series, analogies, and information.⁵⁹ Two of the sections were a direct reflection of Binet's assumption that intelligence could be equated with an individual's awareness of his surroundings. In the practical judgment section, recruits had ninety seconds to answer sixteen questions such as: "Why is beef better food than cabbage? a) it tastes better b) it is more nourishing c) it is harder to obtain."⁶⁰ In the "information section, recruits had four minutes to identify the answers to forty questions such as, "Who wrote Huckleberry Finn?" "Who is Christie Mathewson?" and "When did Lee surrender at Appomattox?"⁶¹

By the end of the war, psychologists were employed in most training camps, and over 1,750,000 men had taken one of the tests.⁶² This extensive

⁵⁷ Paul Davis Chapman, "Schools as Sorters: Lewis M. Terman and the Intelligence Testing Movement, 1890-1930." (Ph.D. Dissertation, Stanford University, 1979), p. 77.

⁵⁸ Carl Campbell Brigham, A Study of American Intelligence (Princeton University Press, 1923), p. 77.

⁵⁹ *Ibid.*, pp. 3-31.

⁶⁰ *Ibid.*, p. 13.

⁶¹ *Ibid.*, p. 29.

⁶² Kevles, "Testing the Army's Intelligence," p. 573.

use of intelligence testing not only gave the profession a chance to experiment with group tests and gain a large pool of quantitative data, but it also brought testing into the popular consciousness. Lawrence Cremin has suggested that educational testing in the early part of this century "would undoubtedly have remained very much a professional phenomenon had it not been for the historical intervention of World War I."⁶³

Certainly the administration of these intelligence tests which had only a short general heritage and then were hurriedly modified for group application, provided substantial grist for both the mills of professional and public debate. The intelligence test, a psychological tool of apparently enormous application, had been invented and shown to the public. Yet, even among its developers, and certainly among its popularizers, the basis of the new invention was a mystery. Yerkes, who approached testing from a strict hereditarian perspective, had entered the war effort with an interest in isolating the mental defectives; in contrast, Walter Dill Scott and Walter Van Dyke Bingham were interested in the vocational context of testing. At the end of the war, the leading psychologists were nowhere near in agreement about what they had succeeded in testing.⁶⁴

Shortly after the end of the war, the lack of a professionally accepted theoretical foundation for the tests led to a heated controversy among the psychologists themselves and within the public at large. Armed with masses of undefined and potentially controversial data, the psychologists, returning from their experience in the army, sought to interpret their findings. The disputes that ensued can be classified under four broad headings; 1) the debate over a

⁶³ Lawrence Cremin, The Transformation of the School: Progressivism in American Education, 1876-1957 (New York: Knopf, 1961), p. 187

⁶⁴ For an excellent discussion of the significance of these differences in perspectives, see See Richard T. von Mayrhauser's "Elimination as Prediction."

definition of intelligence and whether the tests actually measured "that" quality; 2) the debate over the impact of heredity and environment on the development of intelligence and the implications for racial and immigration policies; 3) the debate over the general implications for democracy that are implicit in the army data, and; 4) the debate over the proper use of the tests.

Intelligence: Measured but Not Defined

In June 1923 Edwin Boring, having just joined the Harvard faculty after working with Hall at Clark University and with Yerkes in the army, attempted to clarify an issue that was the basis of divisive debate within his profession.⁶⁵ Writing in the New Republic in terms that would be understandable to the lay person, he asserted that, "intelligence as a measurable capacity must at the start be defined as the capacity to do well in an intelligence test. Intelligence is what the tests test."⁶⁶ Boring presented this not as an ironic tautology but rather as the obvious conclusion of anybody who was familiar with the "basic observational facts of the psychology of intelligence."⁶⁷

The Internal Professional Debate

That intelligence was what the tests measured was not obvious to all those who were pondering the significance of the tests. Appearing almost simultaneously with Boring's article were Walter Lippmann's broadside attacks on

⁶⁵ Edwin G. Boring, "Intelligence as the Tests Test It," The New Republic (June 6, 1923):35-37.

⁶⁶ Ibid., p. 35. Boring's comment has been the subject of controversy. Those who seek to ridicule psychologists' lack of a definition of the quality they seek to measure consider this statement to be a foolish tautology. Those reading it more sympathetically argue that Boring was in fact limiting the implications of the awful task of measuring human beings; he was stating that intelligence had no meaning outside of the tests themselves.

⁶⁷ Ibid., p 35.

testing.⁶⁸ Rather than closing the discussion on this question of a definition of intelligence, Boring's statement became just a small part of the heated professional controversy that was surfacing in the popular press.

The 1920s debate over the concept of intelligence had precursors in the pre-war period. Although psychologists had been, in surprising numbers, willing to test for and make invidious comparisons regarding something that they did not define, some had put forth working definitions. Foremost among these had been William Stern of the University of Hamburg, who in 1914 asserted that intelligence could be defined as the "general capacity of an individual to adjust his thinking to new requirements. It is the adaptability to the new problems and conditions of life."⁶⁹ By venturing forth with a definition of the illusive concept, Stern became a foil, drawing disagreements from all sides.

After World War I, with the results of over 1.7 million tests in the hands of hundreds of applied psychologists who were using the data to reach awesome conclusions for individuals, races and nationalities, the absence of any consensus on just what was measured became obvious.⁷⁰ The differences among applied psychologists regarding this key concept were clearly demonstrated in a symposium sponsored by the Journal of Educational

⁶⁸ Lippman's role vis-a-vis emerging professional psychology is intriguing. He maintained an active friendly correspondence with Robert M. Yerkes--a lifelong staunch hereditarian. See Yerkes Papers and Lippmann Papers at the Yale Archives. Further, Lippmann's book, Public Opinion (New York: Harcourt, Brace and Company, 1922) which John C. Burnham calls "one of the most influential books of the decade," both broke new ground and popularized social psychological concepts of social control. See: John C. Burnham, Paths to American Culture: Psychology, Medicine, and Morals (Philadelphia: Temple University Press, 1988), p. 91.

⁶⁹ William Stern, "The Psychological Methods of Testing Intelligence," Educational Psychology Monographs 13 (1914):163.

⁷⁰ Sheldon H. White, "I.Q.: The Myth of Measureability," National Elementary Principal 54 (1975), p. 3. JoAnne Brown contends that "the explosion of publicity that accompanied the psychologists' war efforts made them uneasy, and fostered their increased attention to matters of professional secrecy and monopoly." See: JoAnne Brown "The Semantics of Profession," p. 188.

Psychology in 1921.⁷¹ The journal asked "seventeen leading investigators" to address the questions: "What do I conceive intelligence to be?" and "What are the most crucial next steps in research?"⁷² Several of the scholars began by responding directly to Professor Stern. Terman objected to what he characterized as Stern's "teleological definition" because it was too broad and furnished "no clue for judging the value of different kinds of adaptation."⁷³ In contrast, V.A.C. Henmon of the University of Wisconsin criticized Stern's definition for "narrowing its meaning arbitrarily and neglecting its compound nature."⁷⁴ Henmon advanced his own broader definition: "Intelligence is indicated by the capacity to appropriate truth and fact as well as by the capacity to discover them."⁷⁵

The various attempts of the testers to define the quality they were testing covered a broad territory. For some scholars the concept of intelligence involved a fairly circumscribed type of mental activity associated with higher level reasoning; for others the definition included aspects which might be considered moral attributes of individuals. Intelligence was defined variously as: "the power of good responses from the point of view of truth or fact," (Edward L. Thorndike of Columbia University);⁷⁶ "general modificability of the nervous system," (Rudolph Pintner of the Ohio State University);⁷⁷ and, "learning or the ability to

⁷¹ "Intelligence and its Measurement: A Symposium," Journal of Educational Psychology 12 (March, 1921):123-147, and 195-216.

⁷² *Ibid.*, p. 123.

⁷³ *Ibid.*, p. 127.

⁷⁴ *Ibid.*, p. 196.

⁷⁵ *Ibid.*, p. 195.

⁷⁶ *Ibid.*, p. 195.

⁷⁷ *Ibid.*, p. 139.

learn to adjust oneself to the environment," (Steven S. Colvin of Brown University).⁷⁸ Perhaps the most concise definition was that of Herbert Woodrow, who asserted that intelligence was "acquiring capacity."⁷⁹ Some psychologists eschewed the whole concept of a definition for intelligence and felt that measurement specialists should boldly proceed without such a conceptual underpinnings. For example, Sydney L. Pressey from Indiana University indicated that he was "not much interested " in the definition of intelligence but rather . . . interested to know what such tests will do in solving this or that problem."⁸⁰

Among the scholars who sought a definition that limited the concept of intelligence to higher level thought, Terman was the leader. Terman defined intelligence as "the capacity to form concepts, to relate them in diverse ways and to grasp their significance." To Terman, an individual was intelligent in proportion "as he [was] able to carry on abstract thinking."⁸¹ Terman had no qualms about defining one kind of mental activity as higher than another. He rejected outright an intellectual relativism that would have allowed that there are different kinds of intelligence. With typical stridency, he dismissed this concept by noting that, "it is difficult to argue with anyone whose sense of psychological values is disturbed to this extent."⁸² He contended that it should be completely clear to all that, "in the long run it is the races which excel in abstract thinking that eat while others starve. . . . The races which excel in conceptual thinking could, if they wished,

⁷⁸ Ibid., p. 137.

⁷⁹ Ibid., p. 207.

⁸⁰ Ibid., p. 144.

⁸¹ Ibid., p. 127.

⁸² Ibid., p. 128.

quickly exterminate or enslave all the races notably their inferiors in this respect."⁸³

In contrast to Terman's emphasis on abstract reasoning. Louis L. Thurstone, of the Carnegie Institute of Technology, contended that a definition of intelligence must include such personality attributes as perseverance. Thurstone maintained that:

Intelligence as judged in everyday life contains at least three psychological . . . components: a) the capacity to inhibit an instinctive adjustment, b) the capacity to redefine the inhibited instinctive adjustment in the light of imaginably experienced trial and error, and c) the volitional capacity to realize the modified adjustment into overt behaviour to the advantage of the individual as a social animal.⁸⁴

Thus he saw intelligence as the interaction of a deliberative attitude, which would keep an individual from making precipitous judgments, with the conceptual ability to foresee the results of actions and the persistence to pursue a thought or plan of activity. Thurstone thus equated intelligence with general social effectiveness.⁸⁵

In 1925 John H. Herring, a Teacher's College psychologist, writing in the same journal that had originally sponsored the symposium, The Journal of Educational Psychology, attempted to propose a definition that the discipline could accept:

Composite Statement of the Meaning of Intelligence

Intelligence is conscious, biological response to stimulus (Thorndike, Watson, Franzen, Peterson), resulting in environmental readjustment (Binet, Stern, Terman, Colvin, Pintner, Thurstone), by conscious solution of problems not before solved by the same animal (Meumann, Stern, Ballard, Pintner), In life process there are

⁸³ Ibid., p. 129.

⁸⁴ Ibid., p. 202.

⁸⁵ Ibid., p. 203.

frequent conflicts among instincts, ideas and environments (Franzen, Thurstone), individual and social, by which satisfying responses are inhibited (Thurstone), and annoying responses are incited. Trial and error solutions (Thorndike, Thurstone) are sometimes almost infinitesimal behavior commencements, especially in speech mechanism (Watson). There is always a more or less endurable balance between satisfiers and annoyers in biological mental life. An organism which manages its learning so as maximally to improve the balance is said to approach its limit of educability, that is, its intelligence (Franzen, Dearborn). Intelligence involves millions of neuro-conscious activities which convention has for the time more or less fixed in the following verbal categories: memory (Haggerty), association (Freeman, Haggerty), imagination (Freeman, Thurstone, Haggerty), attention (Freeman), discrimination (Haggerty) judgment (Haggerty), reasoning (Haggerty), analysis (Ballard), integration (Ballard, Watson, Franzen, Peterson).⁸⁶

Despite this attempt (or possibly in part because of it) at consolidation and synthesis, the discipline of psychology in fact lacked any consensus on what it was that they meant by the word "intelligence."

The Public Debate

The lack of agreement on a definition for intelligence naturally led to a debate over what the tests actually measured. Although Walter Lippmann pointed out the absence of an accepted definition of intelligence to the lay public in 1922, the actual debate over the proper definition of intelligence had been largely internal to the profession. In contrast to that internal debate, the discussion over whether the tests in fact measured intelligence became quite public.

For those who were comfortable with Boring's contention that the intelligence tests were "ipso facto" measures of intelligence, the criterion of quality by which new tests would be judged was the degree to which their results correlated with such accepted tests as the Stanford-Binet. For those who did not

⁸⁶ John P. Herring, "The Nature of Intelligence," The Journal of Educational Psychology 16 (November, 1925):509.

find Boring's definition compelling, there was a wide range of latitude to question what quality these new instruments were measuring.

Marion R. Trabue, a Columbia University psychologist, presaged within the profession some of the external arguments that Lippmann would raise later.

Trabue asked:

After all, is it general intelligence that we wish to measure? Is it not really more important for our purposes to measure the specific type of intelligence which enables children to succeed in the kind of work offered by the schools, than to measure intelligence in general. A test of general health, which gave no more specific information than that the patient was very sick, would not be any more useful in medical practice than a general intelligence test would be in educational practice.⁸⁷

Walter Lippmann raised the same objection later that year when he proposed a hypothetical "Athletic Quotient." Lippmann pointed out that if a group were to seek a unilinear measure of athletic ability in the same way that psychologists sought a unilinear measure of intellectual ability, they would:

scratch their heads. What shall be the hour's test, they wonder, which will measure the athletic capacity of Dempsey, Tilden, Sweetser, Siki, Suzanne Lenglen and Babe Ruth: . . . of all sprinters, Marathon runners . . . billiards players . . .?⁸⁸

Lippmann then contends that the committee would come up with a sort of condensed Olympic games and compute statistically the composite score for all of the tests. Lippmann concedes that such tests might indeed give some clue to athletic ability, but certainly they would not illuminate the distinct abilities and activities that went into the composition of the single unilinear "athletic quotient."⁸⁹ To both Lippmann and Trabue a single intelligence score was far

⁸⁷ Quoted in: Boring, "Intelligence as the Tests," p. 35. See also: Gould, The Mismeasure of Man, p. 125.

⁸⁸ Walter Lippmann, "The Reliability of Intelligence Tests," New Republic 8 (November, 1922):276.

⁸⁹ Ibid.

less useful than would have been a more complete picture of the distinct abilities, strengths and weaknesses of individuals.

The pacing of the tests was another aspect of the controversy over what the tests measured. This, too, was debated in both the internal professional and the general public forum. Was it appropriate to have the tests timed in such a manner that the majority of people were not able to finish? Because his definition of intelligence included three phases, the second of which was the analytical phase, Thurstone objected to tests that did not allow for profound thought:

I am quite sure that our intelligence tests in which the candidate races against time for a few minutes do not measure adequately the more inhibited and deliberative profound type of intelligence.⁹⁰

Walter Lippmann, in the second installment of his New Republic essays, raised the same issue. He granted that under the circumstances that the tests were given in the army, it was justified to adopt a "rough test which would give quick classification."⁹¹ Lippmann did not believe, however, that such a test could "measure the intelligence of the American nation."⁹² Boring countered this criticism of the tests by contending that intelligence was analogous to the power of an engine. He noted that, "if these people have less power, they have to go up the hill in low gear and it takes them longer; that is all. Of course they 'get there' just the same, but when they 'get there' their powerful rivals are on and somewhere else."⁹³

⁹⁰ Journal of Educational Psychology, "Symposium..." p. 203.

⁹¹ Walter Lippmann, "The Mystery of the 'A' Men," New Republic 1 (November, 1922):248.

⁹² *Ibid.*, p. 248.

⁹³ Boring, "Intelligence as the Test," p. 36

Introducing their symposium in 1921, the editors of the Journal of Educational Psychology had noted that they "hope[d] that a vigorous discussion would grow out of these initial statements."⁹⁴ The intra-professional debate did, in fact, intensify dramatically in the next year as new issues came to the fore.

Intelligence and Heredity

The decade of the twenties was marked by racial and ethnic prejudice and by a strong eugenics movement within the United States. Eugenist views dominated educated America. The psychologists who invented the early intelligence tests were a part of the culture that focused on differences rather than similarities and that ascribed differences in ability or position to genetic determinism.⁹⁵ However, there was not a consensus among those psychologists on the implications of the tests.

In April 1922 William C. Bagley of Columbia University's Teacher's College delivered an address entitled "Educational Determinism: or Democracy and the I.Q." to the Society of College Teachers of Education.⁹⁶ Bagley criticized definitions of intelligence that emphasized the immutability of intellectual capacity--definitions such as Terman's. Bagley also directly raised the issue of nature vs. nurture in the development of intelligence, and he discussed the implications of the "determinism" implicit in a "genetic view" of intellectual capacity. Three months later, in an editorial in The Journal of Education Research, Terman responded to Bagley directly, contending that the only counter

⁹⁴ Journal of Educational Psychology, "Symposium...", p. 123.

⁹⁵ Eugenist views were certainly not unique to the twenties. As late as 1940, Edward L. Thorndike contended that "One sure service of the able and good is to beget and rear offspring. One sure service (about the only one) which the inferior and vicious can perform is to prevent their genes from survival." Cited in Clarence J. Karier, "Elite Views on American Education," Journal of Contemporary History Volume 2:3, (1967):153-154.

⁹⁶ William C. Bagley "Educational Determinism; or Democracy and the I.Q.," School and Society 15 (April 8, 1922):373-384.

arguments to a hard determinism, i.e., a hereditarian view of intelligence, had been sentimental.⁹⁷ He then asserted that the hereditarian view was "entitled to the right of way as a guide to action until something more substantial than sentiment can be brought to bear against it."⁹⁸ Bagley responded six months later that "sentiment has not been an entirely negative force in this world of ours."⁹⁹ Adopting the same tone of sarcasm that characterized his adversary Terman, Bagley then proceeded to ask why, if the hereditarian viewpoint was correct, didn't we return to "hereditary leadership and even the divine right of kings if only these doctrines could be tempered with a little Mendelism."¹⁰⁰

Bagley then expressed his fears regarding the fatalistic assumptions of "hereditarians" and noted that his quarrel was "not with the tests, but with the fatalistic assumptions which are part of their heredity."¹⁰¹ He believed that the tests were "overburdened with Galtonian tradition."¹⁰² For Bagley, the fundamental issue was the question of "the possibility of developing through education and other environmental agencies the traits that determinists assume to be both native and essentially unmodifiable."¹⁰³

The discussions of the relative impact of heredity versus environment had direct implications in questions of college admissions. In answer to his own

⁹⁷ Lewis M. Terman, "The Psychological Determinist, or Democracy and the I.Q.," Journal of Educational Research 6 (1922):58.

⁹⁸ *Ibid.*, p. 59.

⁹⁹ William C. Bagley, "Professor Terman's Determinism: A Rejoinder," Journal of Educational Research 6 (December, 1922):372.

¹⁰⁰ *Ibid.*, p. 375.

¹⁰¹ *Ibid.*, p. 384.

¹⁰² *Ibid.*, p. 375.

¹⁰³ *Ibid.*, p. 373.

rhetorical question, "Which applicants are most worth educating?" William O. Allen, a psychologist at Lafayette College, indicated that "science points the way. Colleges should listen to the voice of their own laboratories. Biology says 'blood will tell.'"¹⁰⁴ On the selection of college students he suggested "heredity, native ability, as the scientific and fundamental ground for choice."¹⁰⁵

Another critical issue in the controversy over whether intelligence was determined by "the germ plasm" or by the environment was the question "at what point in a person's life does intellectual growth stop?" Terman, although disputing claims that the Army Alpha Tests showed that the average mental age of Americans was just 13.4 years, contended that there was no intellectual growth after the approximate age of sixteen.¹⁰⁶ Yerkes went even further and pointed to a difference of about twenty percent in the scores of the twenty-year-olds and sixty-year-olds and concluded that the intelligence of individuals declined with age.¹⁰⁷

To Bagley this difference in performance did not hold the same implication. He saw in this disparity the simple impact of the twenty-year olds' recent experience with test-taking and academic activity.¹⁰⁸ In response to Terman's contention that even the most specific training in abstract thinking

¹⁰⁴ William E. Allen, "College Admissions," School and Society 14 (October 1, 1921):236. See also: David O. Levine's discussion of discrimination in college admissions in, Levine, The American College, pp. 136-161.

¹⁰⁵ Allen, "College Admissions," p. 236. [Allen then noted that he was not advocating a class bound system; "some of the best strains of human blood are to be found in the economic middle and lower classes. It is of primary importance that talented youth sprung from the common people should find college doors wide open." p. 237.]

¹⁰⁶ Terman, "The Psychological Determinist," p. 58.

¹⁰⁷ Robert M. Yerkes (ed.) Psychological Examining in the United States Army" (Washington D.C.: Government Printing Office, 1921), p. 813.

¹⁰⁸ Bagley, "Educational Determinism," p. 380

would not improve "one's ability to perform more and more difficult types of intellectual problems," ¹⁰⁹ Bagley argued from example. He pointed to such figures as Lincoln and Darwin and contended that neither of these historically important individuals could have reasoned at twenty the way that they did at fifty.¹¹⁰ By the late twenties, Bagley would be joined by the University of Chicago's Frank Freeman, Yale's Arnold Gesell and the University of Iowa's George Stoddard in 1) finding significant variation in individual maturation rates and 2) stressing that an individual's behavior and intellect could be modified by changes in the environment.

Intelligence and Race

Although the issue of heredity versus environmental determination of intelligence had important implications primarily for educators and schools, the related issues of genetic differences in the intelligence of races and nationalities had concrete implications for far larger groups. The initial report that Yerkes published in 1921 on the army tests contained over eight-hundred pages of data.¹¹¹ Yerkes realized that even the professional audience might miss many of the conclusions that could be gleaned from this material. To clarify one of the findings that he felt was most significant, he published an article in The Atlantic in March 1923, in which he made clear that the results of the army tests demonstrated that the intelligence of Southern European immigrants was inferior to that of other immigrants and to that of native born Americans.¹¹² Moreover, he noted that the "relation of inferior intelligence to delinquency and crime had

¹⁰⁹ Terman, "The Psychological Determinist," p. 58.

¹¹⁰ Bagley, "Educational Determinism," p. 380

¹¹¹ Yerkes, "Psychological Examining," p. 813.

¹¹² Robert M. Yerkes, "Testing the Human Mind," The Atlantic (March, 1923):358.

been clearly established."¹¹³ He then concluded that those who sought general public decay should "work for unrestricted and non-selective immigration."¹¹⁴

Yerkes thus opened the door to the most heated and long-standing aspect of the debate over intelligence testing: do racial and ethnic groups differ in intellectual ability?¹¹⁵ Shortly after the appearance of Yerkes' article, Carl Campbell Brigham, a young Princeton psychologist who had served as a lieutenant in the psychological division during the war and who would later author the Scholastic Aptitude Test, published A Study of American Intelligence.¹¹⁶

Brigham had acquired his interest in testing while an undergraduate at Princeton; this interest culminated in a doctoral dissertation in psychology on the Binet intelligence tests.¹¹⁷ His doctoral research focused on parts of the Binet test that were not working properly because they were as easy for "dull" as for "bright" students.¹¹⁸ A concern with why people chose particular answers became an underlying theme in Brigham's work as a researcher.

In 1917 after serving one year as an instructor at Princeton, Brigham left temporarily to work with the Canadian Military Hospitals Commission. There he met Yerkes who was then president of the American Psychological Association.

¹¹³ Ibid.

¹¹⁴ Ibid., p. 365.

¹¹⁵ For a useful discussion of racist ideas in American intellectual history, see Chapter 16 "Racism," in Stow Person, American Minds: A History of Ideas (New York: Holt, Rinehart and Winston, 1958).

¹¹⁶ Brigham, A Study of American Intelligence.

¹¹⁷ Dissertation was later published as Two Studies in Mental Test: "Variable Factors in the Binet Tests" and The Diagnostic Value of Some Mental Tests," (Psychological Monographs, No. 24. Princeton: Princeton University Press, 1917.

¹¹⁸ Ibid., pp. 234-236. Brigham's dissertation was critical of sections of the Binet test in which individual items failed to discriminate. Thus, he began his work with intelligence tests with an emphasis on individual items and with a critical perspective.

Yerkes was favorably impressed with Brigham, and a life-long professional friendship began. During the war, Brigham worked with Yerkes administering the Army Alpha.

Written at the urging of his former commander and sponsored by the wealthy eugenicist, Charles W. Gould, A Study of American Intelligence became the popularizing vehicle for the arcane ideas buried in the turgid prose of the Yerkes report.¹¹⁹ Brigham's monograph divided the population of the United States into four groups--three based on ethnicity and one based on race. The groups were the "Nordic," including people from Belgium, Canada, Denmark, Scandinavia, England, and Scotland; the "Alpine," including Germany, France, Northern portions of the Austro-Hungarian Empire and Poland; "the Mediterranean," including Greece, Italy, Spain, Ireland, Wales and Asian Turkey; and the "Negro group."¹²⁰

The army tests, according to Brigham, demonstrated convincingly that Nordic draftees were superior in intelligence to the other groups. In fact, Brigham believed that, based on the results of the tests, ethnic and national groups could be ranked in a precise hierarchy.¹²¹

Along with the ranking of immigrant groups, the Brigham study made distinctions by race. Dividing his four aggregate "types into a total of seventeen nationalities," Brigham compared each of these "nativity groups with the data on

¹¹⁹ Ibid., p. xviii. The popularizing role assumed by Brigham, the young virtual neophyte psychologist is intriguing. He developed a lifelong mentee relationship with Yerkes despite fundamental differences in their later positions on the issues of heredity vs. environment. For a discussion of the significance of "popularizers" to the discipline of psychology see: Doroty Nelkin, Selling Science: How the Press Covers Science and Technology (New York: W.H. Freeman, 1987.) See also: Burnham, How Superstition Won, pp. 85-128.

¹²⁰ Brigham, A Study of American Intelligence, pp. 159 and 207. Brigham notes, that the "Mediterranean at its northern extension . . . has crossed with the primitive types in Iceland." Ibid., p. 208.

¹²¹ Ibid., pp 143-153.

the 'negro draft.'"¹²² From this comparison, he concluded that no Caucasian "nativity group" fell below the "negro race;" he judged Polish born immigrants, however, slightly above native born "negroes," with forty-six percent of their distribution below the average "negro." Brigham concluded the section on racial groups with the statement that:

Our results showing the marked intellectual inferiority of the negro are corroborated by practically all of the investigators who have used psychological tests on which and negro groups.¹²³

Brigham's Study: Its Impact on Social Policy

The implications of these conclusions were obvious and ominous to large portions of the population. Popular writers had already prepared a receptive population with arguments such as Madison Grant's contention that in "crossing of races," the "inferior race always swamped out the superior."¹²⁴ Since immigration from Alpine and Mediterranean groups comprised over seventy percent of the total immigration in the early 1920s, American intelligence collectively was certainly declining, according to Brigham, as a result of ethnic and racial mixing.¹²⁵

Throughout his study, Brigham presented evidence that the intelligence of immigrants had declined consistently in the years since 1887. He noted that the years of residence in the United States correlated positively with scores on the army scale.¹²⁵ He used the inference that he drew from this correlation to

¹²² Ibid., p. 150.

¹²³ Ibid., p. 151. There had been prewar speculation on racial differences in intelligence; e.g. Grant's *Passing of the Great Race* was published in 1916 and Michaud's assessment in *Century Magazine* was published in 1904. There is no question that the Army data provided the statistical "proof" that racists sought.

¹²⁴ Cited in Stow Persons, *American Minds*, p. 288.

¹²³ Brigham, *A Study of American Intelligence*, p. 210.

¹²⁵ Ibid., p. 94.

buttress further his contention that there was an ethnic hierarchy. Overlooking the possibility that length of time spent in the United States might enhance a draftee's familiarity with the type of items on the test, Brigham concluded that the correlation of length of time spent in the United States with intelligence was the result of immigration patterns in which early immigrants had been largely "Nordic." He contended that "we know that our more recent periods of immigration give us an average intelligence which becomes progressively lower and lower."¹²⁵ Moreover, he concluded that "if the four types blend in the future into one American type, then it is a foregone conclusion that future Americans will be less intelligent than the present native American."¹²⁶ Based on these observations, he called for legal steps to prevent this decline. Brigham believed that it was critical that the United States enact restrictive and selective immigration policies dictated by "science and not by political expediency."¹²⁷

Brigham's data and conclusions ignited a public controversy on the related issues of racial difference in intelligence and immigration policies. Some considered his conclusions to be necessary and appropriate scientific justification for restrictive immigration laws. Yerkes, of course, was among those who were most enthusiastic about the report. In his foreword to Brigham's book, he noted that it presented "not theories or opinions but facts" which would lead Americans to conclude that they could not afford to ignore "the menace of race deterioration or the evident relations of immigration to national progress and welfare."¹²⁸ For groups such as the Immigration Restriction League, which had long been

¹²⁶ *Ibid.*, p. 105.

¹²⁷ *Ibid.*, p. 205.

¹²⁸ *Ibid.*, p. 210.

¹²⁹ Robert M. Yerkes, "foreword" to Brigham, *A Study of American Intelligence*, pp. vii, viii.

interested in any data that would buttress its attempts to exclude "hereditary undesirables," Brigham's book was invaluable.¹³⁰

Brigham's Book: The Critics

Brigham's work was not, however, without its critics--some even from within the ranks of fellow intelligence testers.¹³¹ E.G. Boring had a standing agreement with New Republic that he could review any publication in psychology unless it had previously been assigned to another.¹³² In a review written for the New Republic, Boring soundly criticized the basis for his colleague's conclusions. He believed that the army data did not justify conclusions about entire ethnic groups. "It seems to me," he stated, "that a reasonable doubt arises when Mr. Brigham starts to reason from the particulars of his recruits to the universals of

¹³⁰ For a discussion of the work of the Immigration Restriction League, see Thomas J. Archdeacon, Becoming American: An Ethnic History (New York: MacMillan, 1983), pp. 162-172. See also: John Higham, Strangers in the Land: Patterns of American Nativism, 1860-1925 (New York: Atheneum, 1977).

¹³¹ It is worth noting that Margaret Mead was one of the first critics in her Master's Thesis for Columbia's Teacher's College: "Intelligence Tests of Italian and American Children" also referred to Brigham's work. See: May 1924 draft of Thesis on file in Margaret Mead Papers, Box I-1, Library of Congress Manuscript Division. Mead followed up these themes in several of her early publications. See, for example: "The Methodology of Racial Testing: Its Significance for Sociology," American Journal of Sociology 31 (March 1926):657-667; and "Group Intelligence Tests and Linguistic Disability Among Italian Children" School and Society 25 (April 16, 1927):465-468.

¹³² Correspondence Boring to Brigham January 2, 1923 (Harvard Archives Papers of E.G. Boring) Boring explains his relationship with magazine. "I have an arrangement with the New Republic whereby I can ask to review books and they let me do them if no one else has asked first." Boring's first glance at the book provoked a very positive response. He noted to Brigham in this letter "The American Intelligence is here and I looked it through and read the last chapters with my wife last night....You have presented a difficult subject in a wonderfully clear and careful manner, and if our colleagues McDougal and even Terman would follow your methods, there would be less for Lippmann and Dewey to jump on. Congratulations then! May you prosper therefore." By March 23, when he submitted his review, Boring had a different opinion of the book; He noted in a letter to Brigham (March 23, 1923--Harvard Archives E.G. Boring Papers.) "I want, if possible, to make my peace with you in advance." He then previews his soon to be published review and notes that "All I want you to understand now is that there is no personal issue in my disagreeing with you, and that there seemed nothing else scientifically honest for me to do after I really got down to work."

immigrants and races.¹³³ Although Boring conceded that "indications are in the direction which Mr. Brigham points," he argued that Brigham's findings were inconclusive and that "we are by no means ready definitely to recommend legislation."¹³⁴

Bagley also had strong objections to Brigham's work. As an educator who had led the fight against the deterministic implications of much of the work of the "testers," Bagley took issue with what he perceived to be Brigham's distortion of the impact of the schooling process. The Columbia professor of education began his review of the book by noting that in it he had found full confirmation "of [his] forebodings [regarding] . . . educational determinism."¹³⁵ He then criticized Brigham for reasoning in a backwards fashion. Bagley contended that because Brigham had mistakenly accepted a priori the army tests as a valid measure of native intelligence, he missed the true implications of the tests. Brigham had noted that the scores correlated highly with schooling, but had, according to Bagley, mistakenly concluded that, "native intelligence will determine the amount of schooling that one receives."¹³⁶

¹³³ Edwin G. Boring, "Facts and Fancies of Immigration," New Republic (April 25, 1923):246. In another review of Brigham's book, A.J. Snow, of Northwestern University, notes that "with the statement that immigration is declining in intelligence, no one can take exception. But whether, as Brigham argues, this is due to lack of native intelligence in the new immigrant is a much more doubtful matter. . . Whether or not, however, Brigham's warning of approaching degeneration is quite warranted, he has written a book which few psychologists will fail to find useful." A. J. Snow, American Journal of Psychology 34. (1923):304-307.

¹³⁴ Boring, "Facts and Fancies," p. 245.

¹³⁵ William C. Bagley, "The Army Tests and Pro-Nordic Propaganda," Educational Review (April, 1924):179.

¹³⁶ *Ibid.*, p. 180. Brigham's assumption was not uncommon. Even many psychologists who subscribed to E.L. Thorndike's view that heredity shaped environment argued that intelligent students stay in school longer than less intelligent students. These psychologists saw this as the basis for correlation of intelligence with schooling. Brigham does not directly address the issue of nature versus nurture. His conclusions, however, unmistakable indicate a hereditarian view point on his part. The data, however, can be analyzed quite differently. As early as 1934, authors were countering Brigham's conclusions; Horace Mann Bond, in his Education of the Negro in the

Although Bagley disputed the apparent hereditarian basis for Brigham's conclusions, he was sympathetic with some of the conclusions themselves. Bagley, the environmentalist, in agreement with Brigham, the hereditarian, noted that, "no one can seriously doubt the general superiority of the whites over the negroes in native intelligence," but he believed that the army tests demonstrated that "schooling exerts a positive and powerful influence in stimulating the growth of intelligence."¹³⁷

In another important area, Bagley agreed with Brigham; he accepted the need to promote immigration restriction, stating that the "undesirable quality of much of our recent immigration is conceded."¹³⁸ He also agreed with Brigham that racial purity was necessary to advance civilization. Thus, despite fundamental disagreements about what intelligence testing measured, Bagley and Brigham were in agreement about the need for changes in social policies regarding race and ethnicity.

Brigham's work quickly became the impetus for such changes in social policy. The debate among psychologists about Brigham's statistical methods notwithstanding, A Study of American Intelligence became a foundation of a new

American Social Order, argues that Brigham's data itself proves that "either we must admit that Northern Negroes are biologically superior to Southern whites, or we must believe that Northern Negroes are superior or equal to Southern whites because of superior environmental conditions." p. 319. [Bond's book was reissued with a new forward in 1966.] Otto Klineberg, in his Negro Intelligence and Selective Migration, New York: Columbia University Press, 1935, later contested Brigham's conclusions from the data on northern and southern Blacks. He argued that it was superior environment and not selective migration that led to northern blacks scoring higher on intelligence tests than did southern blacks. According to Daniel C. Calhoun (Intelligence of a People, p. 329) the army data demonstrated a marked difference between Northern and Southern whites, Brigham avoids this issue, which certainly does not support his racial hereditarian conclusions.

¹³⁷ Bagley, "The Army Tests," p. 186. Bagley's Columbia Colleague, anthropologist Franz Boas presented what Raymond Fancher calls "the most significant environmentalist response" to Brigham--the Boasian school of anthropology that emphasized "culture." See: Fancher, The Intelligence Men, p. 130.

¹³⁸ Bagley, "The Army Tests," p. 179.

restrictive immigration law passed in May 1924.¹³⁹ This legislation, by establishing "national origin quotas" based on the 1890 census (a period prior to the influx of non-"Nordic" groups), drastically restricted the immigration of Southern and Eastern Europeans. Although neither Brigham nor other psychologists appeared before the Congressional committees, "other patriotic thinkers carried their message for them."¹⁴⁰ The connection was clear to both psychologists and to the public. In an advertisement for the book in the Princeton Alumni Weekly, Yerkes endorsed the conclusions and stated that the book was "better worth re-reading and reflective pondering than any explicit

¹³⁹ Leon Kamin, "Heredity, Intelligence and Politics," in J.J. Block and Gerald Dworkin, eds. The IQ Controversy (New York: Random House, 1976), pp. 374-382.

¹⁴⁰ Ibid., p. 24. See Also: Leon J. Kamin "Mental Testing and Immigration" American Psychologist 37 (1982), 97-98; Allan Nairn, et. al., The Reign of E.T.S., The Corporation that Makes up Minds (Washington, D.C.; Ralph Nader, 1981), pp. 183; Boorstin, The Americans: The Democratic Experience, p. 223; Saretzky, Gary, "Carl Campbell Brigham, The Native Intelligence Hypothesis, and the Scholastic Aptitude Test," Research Memorandum Educational Testing Service, December 1982, p.4.

The actual relationship of Brigham's work to the passage of the restrictive immigration act is open to some debate. Because this act later precluded the immigration of Jews trying to escape Hitler's Europe, it is a volatile topic. E.G. Boring saw a direct connection between the Brigham work and immigration restriction. He noted, however, that Brigham's conclusions were suspect so "we are by no means ready definitely to recommend legislation." Boring, "Facts and Fancies," p. 245. Psychologists have sought a way to separate their professional heritage from 1924 Legislation. See, Mark Snyderman and R. J. Herrnstein conclude in their "Intelligence Tests and the Immigration Act of 1924" American Psychologist, (September 1983):986-995. Snyderman and Herrnstein conclude that "Congress took virtually no notice of intelligence testing, as far as one can ascertain from the records and publications of the time." p. 986. The Snyderman/Herrnstein article touched off a heated discussion in the pages of the Journal in which it appeared. In the American Psychologist, (February 1985):243-244, Franz Samelson presents documented material and data on the issue and argues that Snyderman and Herrnstein's "failure to consider these data and issues was unfortunate." Further, he criticizes the journal itself for publishing the article; "What seems more serious to me, however, is that the editorial review process failed them and us." See also: McPherson, Karla S. "On Intelligence Testing and Immigration Legislation," American Psychologist (February 1985):242-243. A critique of Snyderman and Herrnstein's historical research. Warren G. Findley, a colleague of Brigham's implicitly acknowledges the relationship of Brigham's work to immigration restriction but notes that "congressional restrictions on immigration from different parts of Europe, based on Brigham's findings, were less severe than those imposed on Orientals without benefit of special study." Findley, Warren G. "Carl C. Brigham Revisited" The College Board Review 119 (Spring 1981):9.

discussion of immigration which I happen to know."¹⁴¹ Moreover, the news media reported the conclusions drawn from the Brigham work; for example, the January 27, 1924 New York Times quoted Brigham thusly:

We have been witnessing in this country the wholesale importation of a low-grade people and the exportation of talent. All lines of evidence converge to show that the level of intelligence in this country is declining. There is obviously a limit to our population growth, and that limit is in sight within this century. One form of population control, but only one, is restriction of immigration, restriction of immigration to stay.¹⁴²

Brigham Recants

After Congress passed the 1924 law, the public debate over the ethnic and racial implications of the army test data subsided. By the end of the decade, however, Brigham added a significant postscript to the issue; he refuted virtually all of his earlier conclusions.¹⁴³ First, in 1926, writing in Industrial Psychology, Brigham questioned whether the new tests measured intelligence and then indicated that "our present immigration laws are based on geographical quotas and any system of geographical selection is a stupid one when applied to picking an individual."¹⁴⁴ Brigham feared excluding "*persons of outstanding promise or*

¹⁴¹ Princeton Alumni Weekly (January 17, 1923). Endorsement by Yerkes, p. 3. Further, In a letter to Paul G. Tomlinson, Manager of the Princeton University Press, Yerkes explicitly requests that they hurry to publish the book so that it can precede the Congressional Hearings. "I am sure you will not consider it meddling with your affairs if I ask that the issuance of the book be facilitated as much as reasonable because of its importance in connection with practical immigrational problems that are to be considered in Congress during the next few weeks." Robert M. Yerkes to Paul G. Tomlinson, October 31, 1922. Yerkes Papers, Yale Archives.

¹⁴² "Congress to Tighten Immigration Curb; Members of National Republican Club Are Told of Stringent New Regulations," New York Times, Sunday, January 27, 1924, II, 1:1.

¹⁴³ Carl Campbell Brigham, "Intelligence Tests of Immigrant Groups," Psychological Review, 37 (1930).

¹⁴⁴ Carl Campbell Brigham "Validity of Tests in Examinations of Immigrants" Industrial Psychology I(June 1926):417. Researchers have, to this point, completely overlooked this early expression of Brigham's doubts about the implications of his earlier work and his criticism of the immigration restriction by geographical origin.

talent" from restricted areas "through quota restrictions."¹⁴⁵ Subsequently, in 1928, writing in Eugenical News, Brigham expressed doubts about his earlier methodology and his conclusions.¹⁴⁶ Finally, in what H.A. Overstreet in 1945 characterized as "as gallant an exhibition of scientific integrity as one is likely to find and what Stephen Jay Gould in 1981 called an apology with an "abjectness rarely encountered in scientific literature," Brigham repudiated virtually all of his earlier conclusions.¹⁴⁷ Following a statement that there had been major flaws in

¹⁴⁵ Ibid.

¹⁴⁶ Carl Campbell Brigham "Army Test by States" Eugenical News, 24 (1928):67-69. Historians and journalists have, to this researcher's knowledge, completely overlooked this article too. The hostile forum in which he made these statements showed, in this researcher's opinion, intellectual courage.

¹⁴⁷ H.H. Overstreet, "The Mind of the Negro" Saturday Review of Literature (September 8, 1945):8. and Gould, The Mismeasure of Man, p. 232.

The interpretations of Brigham's recant are generally positive but have different emphases. The recant drew little attention from historians until the genre of test criticism developed in the mid 1970s. Stow Person's 1958 treatment of Brigham's recant in his American Minds: A History of Ideas, (p. 357) is exceptional. Person contends that "because the early intelligence-test programs furnished the racists with presumably objective evidence of differences of racial intelligence, the subsequent re-evaluation of those test results was an important episode in the discrediting of racism." Gould, as a scientist himself, an historian of science and a critic of testing, notes, as mentioned in the text, that this was a rare act for a scientist. Matthew T. Downey, in a biography commissioned by Educational Testing Services agrees, devoting only two paragraphs to the original 1923 book and giving equal space to the retraction. Referring to the latter publication as "the most impressive evidence of Carl Brigham's rejection of the native intelligence hypothesis," Downey applauds Brigham's willingness to scrap the book "which in 1932 was still his major scholarly publication," (Downey p. 27). Allan Nairn, in his report for Ralph Nader (Nairn, 1980) although impressed with an act that was "courageous by any standard," appropriately stresses that "the effects of his erroneous conclusions would still reverberate painfully in the lives of many individuals for many years to come, (Nairn p. 159.) The recantation came after Brigham had become intensely involved with the College Board and was becoming known as the author of the SAT. This researcher has found no evidence of pressure from the Board for Brigham to recant. When analyzed within the context of his early research published in his doctoral dissertation then initial work with the College Board, the Study of American Intelligence stands out as an aberration within Brigham's oeuvre. See chapters five and six in this manuscript for a discussion of Brigham's first involvement with the Board. Shortly after Brigham recanted, other psychologists reexamined the Army data. For example, David Weschler the author of the WAIS and the WISC, two very significant intelligence tests, concluded from his reexamination in 1930 that "The tendency in recent years has been to exaggerate and over-emphasize human differences, whether in the field of psychology, government or industry." David Weschler, "The Range of Human Capacities," Scientific Monthly 31, no. 7 (July 1930): p. 39. see also, Dale Yoder, "The Present Status of the Question of Racial Difference," Journal of Educational Psychology 19 (October 1928).

his methodology, Brigham noted that the "study, with its entire hypothetical superstructure of racial differences, collapses completely." He concluded that, "comparative studies of various national and racial groups may not be made with existing tests . . . One of the most pretentious of these comparative racial studies--the author's own--was without foundation."¹⁴⁸

Thus, changes in Brigham's thoughts were dramatic and public. The racist hereditarian analysis of his first monograph and his first repudiation of that analysis were less than three years apart.

The Controversy Over Implications for Democracy

Even prior to the 1923 publication of Brigham's conclusions on race, ethnicity and nativity, several non-academic writers had presented some of the implications of an apparent decline in American intelligence to the public. By 1922, eugenicist writers had extracted materials from portions of Yerkes' report on the army tests and had issued them for mass consumption. After the publication of Brigham's A Study of American Intelligence, popular awareness of the issue of a decline in national mental abilities was increased further.¹⁴⁹

Even the faith of a liberal humanist such as Vernon Parrington could be shaken by the results of the tests. In his 1930 concluding volume to his three part series on the history of American ideas and literature the prominent historian mourned that, "In light of realistic psychology, with its discovery of morons . . . it is no longer possible to take seriously . . . man in the state of nature, perfectible by following the light of reason. . . . Morons jar one's faith in human perfectibility."¹⁵⁰

¹⁴⁸ Brigham, "Immigrant Groups," p. 165.

¹⁴⁹ Haller, Eugenics, Chapter XI.

¹⁵⁰ Vernon L. Parrington, Main Currents in American Thought: The Beginnings of Critical Realism in American (New York: Harcourt Brace and Company, 1930), p. xxviii.

Among those eugenicist writers who drew ominous conclusions about the future of American democracy from the results of the army tests, Lothrop Stoddard presented perhaps the bleakest predictions. Stoddard, a Brookline, Massachusetts attorney who possessed a Ph.D. in history from Harvard University, published in 1922 his work The Revolt Against Civilization: The Menace of the Under Man.¹⁵¹ His second chapter, entitled "The Iron Law of Inequality," begins by noting that the idea of "natural equality" is one of the most "pernicious delusions that has ever afflicted mankind."¹⁵² As a prominent eugenicist who had previously foreseen the decline of American democracy because he believed that the inherited capacities of the citizenry were insufficient to deal with the complexities of civilization, Stoddard saw in Yerkes' findings quantitative evidence to support his theories. This, however, heightened his sense of alarm and despair for democracy. In reviewing the material that Yerkes presented, Stoddard concluded that the average mental age of Americans was only about fourteen and that "forty-five million, or nearly one-half of the whole population, will never develop mental capacity beyond the stage represented by a normal twelve-year-old child."¹⁵³ He found this "assuredly depressing" and asserted that, "probably never before [had] the relative scarcity of high intelligence been so vividly demonstrated."¹⁵⁴ These conclusions had to be particularly alarming to Stoddard in light of the common acceptance of Goddard's

Parrington in fact died in 1929. The third volume to this important series was published posthumously. The editor notes that the introduction, from which this phrase is quoted, contains Parrington's notes "pieced together in logical order."

¹⁵¹ Lothrop Stoddard, The Revolt Against Civilization: The Menace of the Under Man (New York: Scribner's Sons, 1922.)

¹⁵² Ibid., p. 30.

¹⁵³ Ibid., p. 69.

¹⁵⁴ Ibid., p. 68.

definition of a moron as any adult with a mental age of between eight and twelve. The implications of Stoddard's conclusions were that one-half of the American population was "feeble-minded." As a eugenicist believing that birth rates rose as social class and intelligence fell, he could only predict further decline.¹⁵⁵

Stoddard's despair was echoed by others. Paul Popenoe, the editor of the eugenicist Journal of Heredity, declared bluntly that, in light of what was being discovered about American intelligence, "democracy cannot work."¹⁵⁶ Albert Wiggam, one of the most popular eugenicist publicists, declared that any efforts to improve standards of living and education would be fruitless because weak elements in the gene pool are allowed to survive.¹⁵⁷ With beliefs similar to Thorndike's contention that individuals shape their own environments, Wiggam maintained the "slum people make the slums."¹⁵⁸ Therefore, decline was a certainty.¹⁵⁹

In the final months of 1922, Walter Lippmann responded to these authors in general and to Stoddard in particular. The Lippmann series assailed the conclusions of the cultural pessimists and eugenicists, while revealing to the lay public the basis of internal professional debate among psychologists. Writing in an indignant tone, Lippmann began his New Republic articles with a direct response to Stoddard. He noted that the trouble with Stoddard's conclusions was that, "He was in such an enormous hurry to predict the downfall of

¹⁵⁵ Haller, Eugenics p. 165.

¹⁵⁶ Paul Popenoe, "Measuring Human Intelligence," Journal of Heredity, 12 (1921):232.

¹⁵⁷ Haller, Eugenics p. 72.

¹⁵⁸ Albert E. Wiggam, "The New Decalogue of Science," Century Illustrated Magazine 103 (1922):644.

¹⁵⁹ *Ibid.*, p. 645.

civilization that he could not pause long enough to straighten out a few simple ideas."¹⁶⁰

Lippmann contended that Stoddard, in his haste, had not reached the end of Yerkes' report, or he would have read the warning on page 785 that one should be careful not to treat the norms established by a small pre-war sample of individuals taking intelligence tests as valid.¹⁶¹ The conclusion that the average mental age of Americans was only fourteen was, according to Lippmann, based on a fallacy of using norms established on extremely small pre-war samples to set a standard for the far larger sample during the war. (The pre-war sample had consisted of Palo Alto school children who had taken the Stanford-Binet in 1913.) Lippmann asserted that the results of the army tests had, "knocked the Stanford Binet measure of adult intelligence into a cocked hat."¹⁶² He concluded that Stoddard had written his book "in the belief that the Stanford measure [was] as good as it ever was." To Lippmann, "this [was] not intelligent."¹⁶³

If it was the lack of intelligence of the "popularizers," such as Stoddard, that drew Lippmann into the debate over intelligence tests, it was his disagreements with the testers themselves that kept him there. As his series developed, he illuminated for the general public the issues of the lack of an accepted definition of intelligence, problems of the reliability of the tests, and the potential abuses in the use of the tests. It was on this last issue, the potential abuses and the proper uses and applications of the new tests, that the largest number of participants joined the national debate.

¹⁶⁰ Walter Lippmann, "The Mental Age of Americans," New Republic 25 (October, 1922):214.

¹⁶¹ Ibid., p. 213.

¹⁶² Ibid., p. 214.

¹⁶³ Ibid. p 215.

The Possible Uses of the New Intelligence Tests

Those who saw ominous implications for American democracy in the new tests were not just those who read with bleak pessimism the results of the Army Alpha/Beta tests. Others were alarmed at what they saw as potential abuses of these instruments. The proposed uses of intelligence tests were, in fact, far ranging and, for most of the proposals, there were vocal opponents. The controversies surrounding the applications of the tests echoed themes also being raised in the debate over what the tests measured.

In large part, the applications seen by psychologists and educators for the tests were based on the desire to enhance the efficiency of institutions. Among those few educators who had seen possible applications of the tests even prior to the development of Alpha was William Learned of the Carnegie Foundation for the Advancement of Teaching. In the interest of more efficient use of educational resources, Learned had asked Yerkes in June 1917 to develop an intelligence test specifically to be administered to teachers.¹⁶⁴ After the war, calls for such efficiency became more common. As Walter Dill Scott, a colleague of Yerkes during the war, noted in 1922, "The adult functions to be performed in the state are so many and . . . so diverse that it might be assumed that each individual must attain the position best adapted to his talents."¹⁶⁵ The applied psychologists generally subscribed to a Progressive tenet that the social sciences had the power to redirect and reshape society. Yerkes, for example, contended that the success of civilization "depends upon the proper placement and utilization of brain power."¹⁶⁶

¹⁶⁴ Robert M. Yerkes to William S. Learned. June 8, 1917. Yale Archives: Yerkes Papers, Box 22, folder 578.

¹⁶⁵ Walter Dill Scott, "Intelligence Tests for Prospective Freshmen," School and Society 15 (April 8, 1922):386.

¹⁶⁶ Yerkes, "Psychological Examining," p. 813.

Two major applications for the new tests became and remain significant. One of the most far-reaching proposed uses of the new tests was in classifying students for tracking in the public schools.¹⁶⁷ In the two decades the striking changes in American secondary education that had begun in the late nineteenth century accelerated further.¹⁶⁸ Moreover, pressure from Progressive educators to broaden the curriculum and tailor instruction to the new diversity of students placed administrators in a position where they needed efficient ways of classifying students and directing them into specific curricular options. Terman took the lead in using intelligence tests to make these classifications.

The second major use of intelligence tests was in higher education. In America's colleges and universities the tests were initially used for a wide range of purposes. Some psychologists used them to "track and classify" in ways parallel to Terman's work in the secondary schools. The most important classification issue for higher education soon became, however, whether or not a student was to be classified as admitted.

¹⁶⁷ Breed, Frederick S. "Shall We Classify Pupils by Intelligence Tests," School and Society 15, (April 15, 1922), pp. 406-409. Breed contended that "a brief analysis of the principal uses of intelligence tests . . . reveals the fact that in each case the problem is fundamentally one of classification. Classification of pupils for instructional purposes seems to be at present the most important educational application of intelligence tests. For an excellent discussion of the use of intelligence tests specifically for tracking students in the public schools, see Chapman, "Schools as Sorters."

¹⁶⁸ For a general discussion of these changes, see Cremin, The Transformation of the School, Chapter 8. Not all educators favored classification of students. For example, Henry W. Holmes, of the Harvard Graduate School of Education read a paper before the National Society for the Study of Education in which he granted that intelligence could distinguish between "children of superior intellectual ability and their duller companions." He argued, however, that even if one granted the accuracy of classification by intelligence tests "rapid advancement means that some children will be put into classes for the gifted who ought not to be in such classes. The factor of physiological maturity will be left out of the account. Factors of character and personality will be left out of account." [Speech reprinted as "The General Philosophy of Grading and Promotion in Relation To Intelligence Testing," School and Society, 15 # 383, (April 29, 1922):457-461.]

Conclusion

By the middle of the decade of the 1920s the public controversy over intelligence testing had ebbed. As psychologist Walt Haney recently pointed out in the pages of the American Psychologist, in 1920 the annual average number of articles on intelligence testing listed in the Reader's Guide to Periodical Literature was close to sixty, fell to about ten in 1930, and then dropped to between five and ten each year until the present.¹⁶⁹ If, however, that guide to popular periodicals could not find publications on intelligence tests, it was not because of a dearth of publications. The forum had simply shifted to a medium not indexed by the Reader's Guide--the professional journals.

By 1926 the tests had become the basis for restrictive immigration, for tracking in the public schools, and for admission to higher education. The descendants of Binet's first 1905 tests had established themselves, in just a twenty year period, as significant "gatekeepers" in American society. Although the debate on testing died down in the 1930s, testing itself proliferated.¹⁷⁰

There can be little doubt that the opportunities presented by World War I for psychologists to try their new tests on over 1.7 million recruits hastened the introduction into society of these instruments. This opportunity also promoted the professionalization of psychology. However, because this mass testing came prior to the requisite theoretical advances, the stage was set for heated controversies. Despite these controversies, the American public embraced intelligence testing with remarkable rapidity. The Progressive era gave people a disposition to "look about them with fresh eyes, to investigate what was going on

¹⁶⁹ Walt Haney, "Validity, Vaudeville, and Values: A Short History of Social Concerns Over Standardized Testing," American Psychologist (October, 1981):1022.

¹⁷⁰ *Ibid.*, p. 1023.

and decide to do something about it, something immediate and practical."¹⁷¹

The "intelligence" tests gave the people a new tool with which they assumed they could accomplish something practical.

¹⁷¹ Frederick Lewis Allen, The Big Change: America Transforms Itself, 1900-1950 (New York: Perennial Library, 1969), p. 15.