

Lessons of War: Defining Human Boundaries

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The human body can be seen as analogous to geographic territory. The body possesses elements and processes within its physical and mental bounds similar to the limits used to define physical space and spheres of influence. Since the dawn of time, humans have used the human body to define scale in the material world.

Therefore, it is not surprising that militaries have defined human characteristics in order to organize, train and operate their armed forces. Militaries recognize there are minimum levels of physical and mental characteristics essential for success. A contemporary illustration of this is the recent Department of Defense statement that more than two-thirds of Americans between 17 and 24 fail to qualify for service because they do not meet physical, behavioral or educational standards.¹

What this illustration suggests is that the human body's characteristics or boundaries, like geographic ones, fluctuate. When compared to previous generations this new generation falls short of the established norms for success.

Focusing on how the body can be bounded by measurement, this paper examines how the U.S. Army in World War I defined, utilized and analyzed the physical and psychological boundaries it imposed on its personnel.

The process of measurement began on April 6, 1917 when President Woodrow Wilson signed the declaration of war against Germany. In his April 2nd address to Congress that called for war, Wilson said it would require an additional 500,000 men.²

His recommendation was prudent because in 1917 the Army's 290,000 men were too few to equal the size of their allies' armies or their opponent's, Imperial Germany.³

The need to expand was anticipated in 1915 and subsequently in Congress's *Defense Act of 1916* that called for 500,000 to 1.5 million men, to be raised through voluntary enlistments. Unfortunately, the effort fell short -- only 155,000 men volunteered out of which 63,000 were accepted. More than 90,000 were rejected because they failed to meet the Army's pre-war physical, mental or behavioral standards.⁴

The poor result was not a surprise. Wilson's address to Congress anticipated the *Selective Service Act* of May 18, 1917 that drafted men between the ages of 21 and 30.⁵ The Army rapidly expanded from its 290,000 to over 3.8 million by the war's end in 1918.⁶

The necessity to create a large, well-prepared Army where none existed demanded that the government organize and use the nation's talent, expertise and experience. To do otherwise would result in producing a mediocre force or, even worse, civil discord.

The first boundary to be defined was the requirement to conscript over a million men. It was achieved through three phases of the selective service process. The first step was registering all men who met the age requirement. Next was to classify those men based on specific criteria. This phase set the second boundary by sorting the fit from unfit and identifying who might be exempted from service.⁷ The third phase was mobilizing the selected men by ordering them to training camps to complete their induction.⁸

In order to conscript a million men, the government identified and registered 9.9 million men ages 21-30.⁹ Next, a lottery system called 3 million for a physical examination and allowed them to request for an exemption from service.

At this point in the process one observes the boundaries, or limits, set to decide who would be selected and how those inducted might be utilized based on their physical and mental capacities. By examining this, we learn what the Army and the nation established as benchmarks for selecting who would serve and who would not.

The most obvious benchmark to disqualify a man for service would be his physical or mental condition. The local boards used standards listed in the *Regulations Governing Physical Examinations*,¹⁰ to determine a man's physical and mental eligibility for service. Of the 3 million men called, local physicians examined more than 2.5 million, and rejected 730,000 of them.

In contrast to the physical examination where the boundaries were objective, the local boards faced a subjective challenge in deciding a man's request for exemption. Over 1.5 million men requested one, and the boards granted over 1.1 million. Almost three-fourths of these were granted for family dependency.¹¹

Within less than a year the government was forced to reset their age limits when the age range was changed from 21 to 30 to 18 to 45. The selection process was also modified. Instead of starting with a physical examination, the man completed a questionnaire to identify him for an exemption or deferment. Men were assigned a category -- Class I was eligible for induction; Classes II, III, IV were eligible for exemption; and Class V was physically unfit or not a citizen.¹² This system was more efficient because it did not require a physical examination for those likely to be exempted.

In summary, at this point one sees that in order to expand the Army the government set goals for quantity, age, gender, physical and mental standards, and exempted categories. These benchmarks were respected and well-received, and resulted in the nation being able to field a large and effective force by the end of 1918.

However, there was pressure to revise the standards or to mitigate undesirable results. At the local level there was pressure to revise height and weight requirements and to waive the literacy requirement to just speaking English.¹³ These requests emerged from the fact that 29% of men examined were rejected for defects.

A summary of classifications from December 1917 to September 1918 illustrates the scale of rejection and efforts to mitigate the loss of manpower. During this period over 9.9 million men registered, 6.7 million were exempted and 3.2 million were examined. Of these, 2.2 million were fully qualified for service. The remaining million or so were not completely lost to the Army; hundreds of thousands were classified as remediable or fit for limited service, rather than being disqualified outright.¹⁴

This decision tells us several things. First, it indicates that the standards for service did not always require the most fit. Second, it points to the convergence of the beliefs of 'Progressives' and the medical community that mankind could be improved through targeted developmental programs. Attempts to reclaim these men were accomplished through Dr. John Quayle's "reclamation camps for the physically unfit" and the creation of the Army's Development Battalions.¹⁵

What drove the process was the era's 'Efficiency Movement,' that believed a system managed by experts could efficiently manage physical and human resources for better outcomes. A quaint illustration of this was Secretary of War Newton Baker's statement that his goal was to create "a selective process by which we get the round men for the round tasks, the strong men for the strong tasks and the delicate men for the delicate tasks."¹⁶

There were two groups of experts used to accomplish his goal. One was the medical community, which performed the physical and mental screening of recruits, and the second was the psychological community, which sought to screen for intelligence or to match men to jobs according to their skills.¹⁷

The largest and most essential group was the 4,000 physicians who made the initial physical examination of recruits, which meant there was a physician on all the local boards.¹⁸

A recruit's mental evaluation was likely to occur at his training camp. However, if one demonstrated mental defects such as insanity or idiocy, or admitted to being a chronic alcoholic, he was disqualified at his initial physical examination. It was more likely a recruit who was thought to be mentally defective would be examined by a neuropsychiatrist at a training camp. The 564 of these physicians, trained in neurology and psychiatry, screened for potential neuropsychiatric cases.¹⁹ Collectively, they recommended the discharge of over 60,000 men.²⁰

Concurrent with this screening of millions of men, there existed in the life sciences community a desire to identify human differences through the quantification of individual qualities.²¹

The origin of this objective can be traced to British eugenicists who created the statistical methods to describe species. Their work resulted in the belief that fitness or unfitness could be measured by its deviation from the mean of a given character.²²

In 1917 the foremost advocate for this objective in the U.S. was Charles Davenport. However, his research was constrained by the challenge of collecting data on humans. The war offered him the opportunity to collect it. Davenport with Albert Love was authorized by the Army to collect the measurements on 2 million recruits and to analyze them and publish their findings.

They focused on three measurements -- a recruit's height, weight and chest circumference -- along with personal information to compare his group by age, home state, ethnicity and race. The rationale for this study was it would provide quantitative data on those likely to be physically fit and unfit for service. It could also be used to project rations, uniforms, carrying capacities and marching abilities, and create unit cohesion through race or ethnicity.

Their analysis was based on the "Pignet Index," which was a formula to predict superior to inferior soldiers.²³ Davenport and Love went beyond this prediction by what seems pseudoscience, with conclusions that deviations from the mean in stature, weight and chest size would forecast 23 different defects and diseases. They revealed their hereditarianism by collecting eye and hair colors as predictors of race, ethnicity and origin, and speculated on why specific races had poor eyesight and other ailments.²⁴

The outcome of their work was a volume in the Medical Department's official history and the special bulletin *Defects Found In Drafted Men*. Both illustrate the hereditarian theory of limits, or boundaries, created by quantifying human differences. The limits found did not impact the war. However, *Defects Found In Drafted Men* caused concern in that it suggested the physically fit from "Nordic" America might have to do the fighting given the poor physical qualities found in recent immigrants.²⁵ Fortunately the war ended before the concern became a crisis, and so the quantified boundaries would await possible use in the future.

What did not await future use was the boundary-setting work of the second group that screened recruits: the American psychological community. Psychologists saw the war as an opportunity to apply their expertise to either evaluate men for their mental ability or to match them to jobs according to their skills.

The first objective was led by the academic psychologist Robert Yerkes, a former student of Charles Davenport, and advocate for intelligence testing. The second was developed by applied psychologist Walter Scott. Each had an immediate impact on how the Army processed over 3 million men.²⁶

Scott's *Committee for the Classification of Personnel* proved to be of enormous value to the Army. He brought the Efficiency Movement's belief that a human resources system could be used to match a man's work experience to the Army's needs. Scott's and Walter Bingham's questionnaire placed a man into one of three categories based on prior experience. Their process was quick, immediate, practical and non-threatening to Army traditions or command.

While Scott's and Bingham's work was well-received, the same cannot be said for Robert Yerkes. Prior to the war the evaluation of a person's intelligence was limited to the testing of small, institutionalized populations. The requirement to quickly expand the Army through the incorporation of a large number of men suggested to Yerkes an opportunity to apply intelligence testing on a large scale. He proposed the concept to the National Research Council and the Army's Surgeon General, and received their approval to proceed.

Yerkes assembled a team and by July 1917 they created tests for literate and illiterate recruits. Their tests would ensure "the proper placement and utilization of brainpower" because instead of "...individual information...we substitute systematic scientific observation..."²⁷ Yerkes was confident that testing would eliminate the 'feeble-minded' and assign a man based on his intelligence as revealed through his test score.

Army Surgeon General William Gorgas liked the concept and authorized Yerkes, whom he made a Major, to launch the program. He also approved a school to train psychologists to administer the tests and recommend assignments.

The program began in May 1918. On average over 200,000 men were tested per month and by the end of the war Yerkes' team had tested over 1.7 million men.

Army officers were not happy with the program or with the concept that intelligence scores defined a soldier's potential. The scores and rankings were alien to traditional methods used to assess and incorporate men into the service. The testing system declared itself to be objective and scientific because it measured "native intelligence" and pointed to "the proper placement and utilization of brainpower" better than traditional measures used by the Army.

It was becoming apparent by mid-1918 that the scores did not measure a man's mental capacity or forecast his potential value to the Army. However, it took more than 50 years to show the testing program was flawed. Instead of measuring "native intelligence," the tests measured a man's acculturation and educational experience.

In the end the scores set no useful boundaries for the Army, and they certainly did not win the war as Yerkes claimed in his *Psychological Examining in the United States Army*, published in 1921. But these skewed measurements had a profound impact on the U.S. in the 1920s that are still felt to this day.

In his monograph Yerkes asked the question: "How intelligent is the Army?"²⁸ The answer, based on a sampling of 160,000 men, shocked the public and confirmed the eugenics movement's belief in the theory of limits.

The answer to the question was the average mental age for white recruits was 13.08, which was three years below what the average was thought to be.²⁹ Yerkes noted there were four groups whose average mental age identified them as morons (8-12 years). These were Russians, Italians, Poles and, the lowest, Negroes. Yerkes embellished his

findings on blacks by adding that: “All officers without exception agree that the Negro lacks initiative, displays little or no leadership, and cannot accept responsibility.”³⁰

This interpretation based on flawed tests and procedures resulted in three outcomes. The first was the passage of the Immigration Act of 1924, which limited the annual number of new immigrants to 2% of the nationalities in the U.S. in 1890. The second was it reinforced the belief that the white and black races should be segregated and there was no value in offering educational opportunities to a group too mentally impaired to benefit from them. And the third was it made the case for advocating laws that promoted medical eugenics. In summary, these boundaries had a pernicious effect that would take decades to overcome.

In conclusion the necessity to quickly create a large American Army in 1917 where none existed illustrates how a nation defined, utilized and analyzed the physical and psychological boundaries it would impose on its citizens. The limits for age and gender or the criteria for physical and mental health to include who might be exempted were conceptual boundaries that had to be defined.

What was delineated worked because the boundaries reflected the prevailing knowledge and practices of the American medical community; the traditions and doctrine of the Army; sensitivity to what was politically feasible; and a strong appreciation of the underlying social and cultural values of American society. The standards and the process for applying them stood up to the pressures to temper them or to find ways to mitigate undesirable results, and even allowed new concepts for defining limits to be tried.

Endnotes

¹ Miriam Jordon, ‘Recruits’ Ineligibility Tests the Military’ *The Wall Street Journal*, (New York 2014)

² Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 227

³ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 247

⁴ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 228

⁵ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 244-245

⁶ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 247

⁷ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 266

- ⁸ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 261-280
- ⁹ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 263
- ¹⁰ Sanders Marble, 'Below the Bar: The U. S. Army and Limited Service Manpower' in Sanders Marble, ed. *Scraping the Barrel: The Military Use of Substandard Manpower 1860-1960* (New York 2012), 113
- ¹¹ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 266
- ¹² Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 267
- ¹³ Sanders Marble, 'Below the Bar: The U. S. Army and Limited Service Manpower' in Sanders Marble, ed. *Scraping the Barrel: The Military Use of Substandard Manpower 1860-1960* (New York 2012), 133
- ¹⁴ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 273
- ¹⁵ Sanders Marble, 'Below the Bar: The U. S. Army and Limited Service Manpower' in Sanders Marble, ed. *Scraping the Barrel: The Military Use of Substandard Manpower 1860-1960* (New York 2012), 134-135
- ¹⁶ Edward M. Coffman, *The War To End All Wars The American Military Experience in World War I* (Madison 1986), 59
- ¹⁷ Sanders Marble, 'Below the Bar: The U. S. Army and Limited Service Manpower' in Sanders Marble, ed. *Scraping the Barrel: The Military Use of Substandard Manpower 1860-1960* (New York 2012), 135-137
- ¹⁸ Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955), 257
- ¹⁹ Sanders Marble, 'Below the Bar: The U. S. Army and Limited Service Manpower' in Sanders Marble, ed. *Scraping the Barrel: The Military Use of Substandard Manpower 1860-1960* (New York 2012), 135
- ²⁰ Colonel Pearce Baily, Lieutenant Colonel Frankwood W. Williams, Sergeant Paul O. Komora, *The Medical Department Of The United States Army In The World War, Volume X Neuropsychiatry In The American Expeditionary Forces* (Washington 1929), 164

- ²¹ Robert Cardona and Elspeth Cameron Ritchie, 'Psychological Screening of Recruits Prior to Accession in the US Military' in Bernard L. DeKoning, ed., *Textbooks of Military Medicine: Recruit Medicine* (Washington 2006), 300
- ²² Daniel J. Kevles, *In The Name Of Eugenics: Genetics and the uses of Human Heredity* (New York 1985), 28
- ²³ Charles B. Davenport and Albert B. Love, *The Medical Department Of The United States Army In The World War, Volume XV Statistics, Part One, Army Anthropology* (Washington 1921), 20-22
- ²⁴ Charles B. Davenport and Albert B. Love, *The Medical Department Of The United States Army In The World War, Volume XV Statistics, Part One, Army Anthropology* (Washington 1921), 33
- ²⁵ Sanders Marble, 'Below the Bar: The U. S. Army and Limited Service Manpower' in Sanders Marble, ed. *Scraping the Barrel: The Military Use of Substandard Manpower 1860-1960* (New York 2012), 133-134
- ²⁶ Daniel J. Kevles, 'Testing the Army's Intelligence; Psychologists and the Military in World War I' *The Journal of American History*, Vol. 55, No. 3, Dec., 1968 (Bloomington 1968), 573
- ²⁷ Daniel J. Kevles, 'Testing the Army's Intelligence; Psychologists and the Military in World War I' *The Journal of American History*, Vol. 55, No. 3, Dec., 1968 (Bloomington 1968), 569
- ²⁸ Robert M. Yerkes, ed., *Psychological Examining In The United States Army* (Washington 1921),785
- ²⁹ Stephen Jay Gould, *The Mismeasure of Man* (New York 1981), 195-197
- ³⁰ Robert M. Yerkes, ed., *Psychological Examining In The United States Army* (Washington 1921),742

Bibliography

Colonel Pearce Baily, Lieutenant Colonel Frankwood W. Williams, Sergeant Paul O. Komora, *The Medical Department Of The United States Army In The World War, Volume X Neuropsychiatry In The American Expeditionary Forces* (Washington 1929)

Robert Cardona and Elspeth Cameron Ritchie, 'Psychological Screening of Recruits Prior to Accession in the US Military' in Bernard L. DeKoning, ed., *Textbooks of Military Medicine: Recruit Medicine* (Washington 2006)

Edward M. Coffman, *The War To End All Wars The American Military Experience in World War I* (Madison 1986)

Charles B. Davenport and Albert B. Love, *The Medical Department Of The United States Army In The World War, Volume XV Statistics, Part One, Army Anthropology* (Washington 1921)

Stephen Jay Gould, *The Mismeasure of Man* (New York 1981)

Edgar Jones, Kenneth C. Hyams and Simon Wessly, 'Screening for vulnerability to psychological disorders in the military: an historical review' *Journal of Medical Screening*, 2003, Volume 10, Number 1 (London 2003)

Miriam Jordon, 'Recruits' Ineligibility Tests the Military' *The Wall Street Journal*, (New York 2014)

Daniel J. Kevles, 'Testing the Army's Intelligence; Psychologists and the Military in World War I' *The Journal of American History*, Vol. 55, No. 3, Dec., 1968 (Bloomington 1968)

-*In The Name Of Eugenics: Genetics and the uses of Human Heredity* (New York 1985)

Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington 1955)

Albert G. Love and Charles B. Davenport, *Defects Found In Drafted Men* (Washington 1919)

Sanders Marble, 'Below the Bar: The U. S. Army and Limited Service Manpower' in Sanders Marble, ed. *Scraping the Barrel: The Military Use of Substandard Manpower 1860-1960* (New York 2012)

Office of the Provost Marshal General, *Standards of Physical Examination Governing the Entrance to all Branches of the Armies of the United States* (Washington 1918)

Michael M. Sokal, 'James McKeen Cattell and Mental Anthropometry: Nineteenth-Century Science and Reform and the Origins of Psychological Testing' in Michael M. Sokal, ed. *Psychological Testing and American Society 1890-1930* (New Brunswick 1987)

James Reed, 'Robert M. Yerkes and the Mental Testing Movement' in Michael M. Sokal, ed. *Psychological Testing and American Society 1890-1930* (New Brunswick 1987)

Robert M. Yerkes, ed., *Psychological Examining In The United States Army* (Washington 1921)