

# *Places, Everyone!* *IQ Heritability, Ideology, and Education*

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Since the invention of the intelligence test, there have been frequent claims that the existence of a substantial genetic component to IQ scores has important implications for education. From Terman to Herrnstein and Murray, the social scientists most prominently associated with this position, however, have invariably viewed IQ as the basis for determining a student's social and occupational future at an early age and providing an education to match. Thus the supposed significance of genetic influence on IQ has invariably reflected a particular ideological view of the purpose of education and its relation to the state that is rooted in conservative political thought.

Depuis l'invention du test d'intelligence, les revendications quant à l'existence d'une dimension génétique substantielle dans les scores de QI ont été fréquentes et ont d'importantes implications en éducation. De Terman à Herrnstein et Murray, les spécialistes des sciences humaines les plus en vue à cet endroit ont cependant invariablement perçu le QI comme base pour déterminer le futur social et professionnel d'un étudiant dès son jeune âge et pour lui fournir une éducation en conséquence. Ainsi l'importance supposée de l'influence génétique sur le QI a reflété invariablement un point de vue idéologique particulier quant au rôle de l'éducation et à sa relation avec l'état qui est enracinée dans la pensée politique conservative.

In the ideal State, declared Plato in *The Republic*, "each individual should be put to the use for which nature intended him" (Plato, n.d., pp. 133-34), and once assigned the task for which "he was by nature fitted ... at that he was to continue working all his life long and at no other" (p. 67). An exception to this rigidity would do no great harm, according to Plato, provided that it occurred only among the traders and craftsmen – the men

of brass and iron in his parable of the metals – who were to comprise the lowest of the three social classes. If, however, a cobbler or carpenter attempted “to force his way” into a class “for which he is unfitted,” it would cause “the ruin of the State” (p. 149). Only by preventing such “meddling” of one class with another was it possible to create the State which would be “rightly ordered,” hence “perfect,” and “being perfect, is therefore wise and valiant and temperate and just” (p. 139).

Plato did not offer a specific method for determining an individual's appropriate position, though he did suggest an hereditary basis for class membership, observing, in a surprisingly mature insight for his time, that “a golden parent will sometimes have a silver son, or a silver parent a golden son.” In such cases, he continued, “nature orders a transposition of ranks” (p.125) even if it meant the son of a ruler becoming a craftsman.

Some 2000 years later, in the face of movements for greater social equality, Edmund Burke pined for those “better and wiser days” when the

legislators who framed the ancient republics ... thought themselves obliged to dispose their citizens into such classes, and to place them in such situations in the state, as their peculiar habits might qualify them to fill, and to allot to them such appropriated privileges as to secure to them what their specific occasions required. (Burke, 1955, p. 215)

Although even “the coarse husbandman” had enough common sense to recognize the “appropriate food, care, and employment” for each of his animals, observed Burke, the “modern legislators have attempted to confound all sorts of citizens ... into one homogeneous mass” (p. 216). In the “great primeval contract of eternal society,” he concluded, the “lower ... [and] higher natures” were linked “according to a fixed compact sanctioned by the inviolable oath which holds all physical and moral natures, each in their appointed place” (p. 110).

Early in the 20th century, in a modern society marked by increasing vocational complexity and specialization of talent, the social ideal shared by conservative thinkers<sup>1</sup> from Plato to Burke was finally provided with a putatively scientific basis, as

psychologists, exulting in the creation of what would become their field's most famous instrument, concluded that each individual was indeed suited by nature for a particular position and that such an appropriate role could now be objectively and accurately determined by a paper and pencil test in less than an hour. The Platonic state was to be attained through the psychometric state; "intelligence" test scores would rationalize the allocation of human resources by the precise quantification of every person's intellectual value. English psychometrician Charles Spearman, for example, maintained that the

power of measuring intelligence should also make possible a proper treatment of each individual; to each can be given an appropriate education, and therefore a fitting place in the state – just that which he or she demonstrably deserves. (Spearman, 1927, p. 8)

Like Plato and Burke, Spearman too anticipated social perfection when each person occupied the appropriate "appointed place." The science of mental testing was expected to usher in the millennium: "Class hatred, nourished upon preferences that are believed to be unmerited, would seem at last within reach of eradication; perfect justice is about to combine with maximum efficiency" (1927, p. 8).

As Spearman's words indicated, the educational system was to provide a specific and important service to the ideal, psychometric state. Once the intelligence test score had determined, presumably at an early age, the "fitting place" for which each child was intended, he or she could be given the corresponding instruction. The educational system would thus reflect that "maximum efficiency" which characterized the state by ensuring a proper match between an individual's instruction and his or her eventual position, thus neither wasting resources by burdening the dullards with any more knowledge than was necessary for their assigned role nor by encumbering the future elites with concerns below their prescribed station in the society.

Of course, Spearman's vision was necessarily dependent on a view of intellectual abilities as not only genetically determined but also immutable. For if individuals could utilize the process of education to improve their abilities or acquire new ones, then the notion of a single "fitting place" for each person would be

rendered meaningless. Genetic determinism was thus a necessary postulate for establishment of the psychometric social theorem, and the early mental testers did not hesitate to assure the public that both premise and conclusion, as well as the logical connection between them, were all incontestable.

Henry H. Goddard, for example, the recognized expert on "feeble-mindedness" who devised the nomenclature of "moron, imbecile, and idiot," together with the IQ scores corresponding to each level (see "Report of committee on classification of feeble-minded," 1910, for which Goddard was the chair), maintained that "once a person's mental level is determined, there is no known method of changing it" (Goddard, 1920, p. 50). As a consequence, he explained, an ideally efficient society was one organized "to fit every man to his work in accordance with his intelligence level" (p. 48). Indeed, for Goddard, "an absolute knowledge of mental levels and the organization of the social body on that basis" was the only way to realize "perfect democracy" (pp. 126-127). However, he pointed out, in the past the nation had too often disregarded "the self-evident fact ... [that] social well-being ... should take precedence ... [over] individual freedom" (p. 116). But the society properly based on tests would

ascertain the mental level of people in various activities and ... [should it] find any inefficient, clearly on account of their lack of intelligence or other qualities ... [it] should ... have the right to transfer that individual to some other line of work where he would be more efficient. (pp. 119-120)

Such an involuntary "transfer" would "work no hardship to the individual because in the long run it would actually increase his happiness and lengthen his life" (p. 120).

Extremely simplistic pronouncements about the genetic determination of intelligence (and many other traits) were quite common at the time that Goddard and Spearman were looking forward to a psychometric paradise. Yet even as methodological advancements in behavior genetics produced more sophisticated models of heritability, those psychologists who have championed the importance of genetic differences in ability have typically espoused a view of the role of education as a mechanism to ensure that individuals are directed towards and prepared for

their appointed place in the society, a niche not always as rigidly defined as that in Spearman's or Goddard's vision, but one nevertheless determined at an early age *for*, not *by* each student. This approach considers education not as an opportunity for students to expand their interests and confront new challenges, and certainly not as a process in which students themselves are empowered to make decisions about what they wish to pursue; instead it regards education as a constricting process that should narrow the choices available to students in the name of the state's interest. Thus, the scientific claim about genetic influence has been regularly linked to a conservative ideological view of the purpose of education.

This linkage appears, for example, throughout the writing of Lewis Madison Terman, a President of the American Psychological Association, member of the National Academy of Sciences, and probably the most well known educational psychologist of the first half of the century – the historian of psychology E.G. Boring (1959) referred to him as “the Dean of America's premathematical mental testers,” (p. 440) the “psychologist who more than any other was responsible for making the IQ a household word” (p. 414). Terman introduced the intelligence test into the United States, revising Binet's original instrument for domestic use, and the resulting Stanford revision of the Binet became the leading individual IQ test for the next 20 years, administered some 15 to 20 million times a year in schools and other institutions. In addition, he developed numerous other standardized tests of aptitude and achievement, in particular the Stanford Achievement Test, which was for many years the most widely used battery in the United States to assess mastery of subject matter throughout elementary and high school (see Seago, 1975, especially pp. 49-50, 68-70).

Like many social scientists of the time, Terman had concluded that intellectual ability was largely inherited long before any studies on genetic influence had actually been conducted. “Endowment” was the major “determinant of an individual's intellectual rank,” he wrote (1975/1906, p. 372), 12 years before Sir Ronald A. Fisher proposed the statistical theory leading to the estimation of heritabilities and five years before Thomas Hunt Morgan's development of the chromosome theory

of inheritance. And although Terman himself did no research on the nature-nurture issue, throughout his career he would continue to proclaim, in both professional journals and popular magazines, that intelligence was chiefly determined by "native" or "original endowment" (for example, Terman, 1922b, p. 60; Terman, 1922c, p. 657) and to defend this view against any environmentalist heresies (see Minton, 1988, pp. 190-200).

As a result of genetic determination, Terman maintained that "the limits of a child's educability" could and should be determined in a 5-year-old (Terman, 1920, p. 31; 1919, p. 268). Thus the first and most important educational task was "to establish the native quality of every pupil" through the administration of an IQ test as early as possible (Terman, 1924, p. 340). "Tests are more necessary in the kindergarten than anywhere else," he insisted, since "in other school grades the work itself constitutes a kind of intelligence test." That is, an elementary school student unable to master the skills appropriate to his or her grade level could be "readily recognized as inferior," but the kind of "sand-pile activities" in the average kindergarten offered "no such clear-cut criterion of intellectual normalcy" (Terman, 1919, pp. 37-38). And although school work might provide an indication of intellectual ability, it was still no substitute for an IQ score. "A mental test for every child" was Terman's constant slogan (Terman, 1920, p. 20).

A student's future would then be influenced in many ways, often immediate and not particularly salutary, by the results of such universal testing. A child judged by the test as "too immature to stand a reasonable chance of being able to master the work of the first grade should either be sent home," wrote Terman, "or given work of a pre-primary nature," (Terman, 1920, p. 23) and the educational progress of those 6-year-olds neither excluded from school nor consigned to the sand box by an inadequate test score would continue to depend on an acceptable IQ. "Indeed," he maintained, "it would be desirable to make all promotions on the basis chiefly of intellectual ability" (1916, pp. 16-17) rather than performance on any curriculum-centered or teacher-constructed instrument. "The information standard," as Terman called the latter, had to give way to the IQ score, especially since teachers were so inefficient at perceiving the

limitations of their less competent students. "Time and again," he reported finding "one or more feeble-minded children in a class after the teacher had confidently asserted that there was not a single exceptionally dull child present" (Terman, 1916, p. 24). Without the assistance of IQ scores, teachers would continue to promote these dullards, deceived by their acceptable classroom performance.

Terman was particularly concerned that the least competent students receive treatment appropriate to their ability. The "tens of thousands of high-grade defectives"—those identified by test score as "hopelessly feeble-minded" yet "frequently overlooked" because of their normal appearance and behavior—were to be placed in "permanent custodial care," not so much for their own sake but for the good of the society (Terman 1916, pp. 6-7; 1919, p. 133). Not only would their "surveillance and protection" eliminate "a vast amount of crime, pauperism and industrial inefficiency," according to Terman (1916, p. 7), but their physical separation would protect "normal children" from "injury from such intimate association with inferior and infantile mentation" (Terman, 1914, pp. 120-21). In addition, their removal would allow the public schools to provide greater assistance to "the larger and more hopeful group of children who are merely inferior" (Terman, 1919, p. 133).

The latter group—those "borderline" cases of "high-grade morosity" that went unrecognized by teachers without the aid of an IQ test—Terman estimated at "approximately a million ... in the public schools of the United States" (1919, p. 134). His detailed descriptions of such individuals often found much to commend. One student was "fairly rapid and accurate in number combinations" and could "read with reasonable fluency;" another could "pass as perfectly normal" (Terman, 1916, p. 89). Yet their low IQ scores left no doubt in his mind that "the tests have told the truth. These boys are uneducable beyond the merest rudiments of training. No amount of school instruction will ever make them intelligent voters or capable citizens in the true sense of the word" (p. 91).

Since such children were destined to be "the world's 'hewers of wood and drawers of water,'" Terman saw no point to their inclusion in the "usual curriculum" beyond the earliest grades.

Instead, they were to be “segregated in special classes and ... given instruction which is concrete and practical” in order to make them “efficient workers” (1916, pp. 91-92).

For all students, whatever their ability, Terman believed that “vocational training and vocational guidance” should begin no later than the fifth or sixth grade, and as early as the first (Terman, 1919, p. 269). As Terman described it, this process would direct a student towards those occupations with which he or she is intellectually “compatible” by comparing each child's IQ with “the minimum intelligence quotient necessary for success in each ... occupation” (1914, p. 124). Such “guidance,” he explained, would avert “the saddest as well as the most common failures in life ... due to the selection of a vocation which requires a higher grade of ability than the individual possesses” (1919, p. 270). It would also prevent that “hardly less unfortunate” error – the choice of an occupation “intellectually beneath” the student. As an example of the latter, Terman declared that “anything above 85 IQ” for a barber was “so much dead waste,” yet noted with dismay that “we know a barber who is as intelligent as the average college student” (1919, p. 288).

Although, as a Stanford Professor, Terman himself did not typically conduct vocational guidance, his account of “K,” a Stanford University student, provided an example of the process in action. Astonished by K's mental deficiency, Terman invited the student to his home solely “for purposes of observation” (Terman, 1922a, p. 25) and then analyzed K's “intellectual inferiority” in an article entitled “Adventures in Stupidity.” After a detailed discussion of K's performance on a large number of tests, Terman concluded that the student's “degree of stupidity ... is really not extreme” – indeed, “compared to the average American Negro, K is intellectually gifted” (p. 34) – and announced his occupational limitations and possibilities:

It is unlikely that he will ever be able to manage a business of any considerable importance ... he will never understand the principles of credit ... he will never know what a bond is. That he could become a minister, lawyer, or doctor is unthinkable. (p. 39)

On the other hand, Terman found some 30 blue collar positions appropriate for K – from baker, bricklayer, and butcher to

truckman, valet, weaver, and yardman – as well as “innumerable kinds of clerical work.” In addition to K’s occupational prospects, for good measure Terman predicted that he would be a mediocre citizen, unable to understand fundamental political issues, and at best “a loyal adherent to his party and a devout repeater of its catchwords” (p. 40).

Thus, in Terman’s vision, the genetic determination of intelligence should lead to a scientifically organized society, in which students would be directed from an early age toward an appropriate socioeconomic and political future – some to positions of leadership, others to menial labor. At the same time, however, Terman insisted that, with the sole possible exception of a student with high IQ who was not working “diligently,” neither parents nor pupils were to be informed of the test scores which would exercise such influence over their lives (Terman et al., 1922, p. 24); presumably those with low IQs would not be intelligent enough to accept the evidence of their limitations.

While Terman was urging the sacrifice of individuality and choice to social efficiency in the United States, the internationally eminent English psychologist Sir Cyril Burt was proposing a plan of even greater rigidity for his own country. For two thirds of a century prior to his death in 1971, Burt was one of the most important figures in his field – the first British educational psychologist ever, the first member of his profession to be knighted, and referred to, without exaggeration, as “dean of the world’s psychologists” (quoted in Hearnshaw, 1979, p. 227). And unlike Terman – who, despite his certainty that intelligence was genetically determined, conducted few studies of his own – Burt was well known for both his theoretical and empirical research on the topic. In his acceptance address upon receiving the American Psychological Association’s Edward Lee Thorndike Award, Burt cited his work on “the influence of hereditary endowment” as his “principal contribution” (1972, p. 175).

Throughout his lengthy career Burt maintained that intelligence was “innate, general, cognitive ability” (e.g., Burt, 1955, p. 162), a view he defended in the face of criticism by producing stronger and stronger evidence, which was later judged worthless and probably fraudulent.<sup>2</sup> Actually, it was

somewhat paradoxical that, prior to being discredited, his separated twin studies were widely cited as the best evidence for the high heritability of intelligence since, according to Burt, the trait was *by definition* entirely genetic. But having concluded from the outset that intelligence was "inborn and not acquired" (Burt, 1918, p. 11), Burt went on, like Terman, to offer a vision of public education as a mechanism for the direction of individuals toward their genetically appropriate place in the society.

Burt, too, believed that every child should be tested. At first he recommended that, in addition to a measure of general intelligence, any "special aptitudes" be noted so that a "complete 'psychogram'" might be compiled for each student, which would then be passed on to a "juvenile advisory committee" (1918, pp. 16,17). The goal of this project would be a national index of mental abilities so that "mind power" could be "registered and organized" (p. 18).

Eventually, however, Burt (1925) focused solely on "innate, general" ability, proposing that all children be classified into one of eight IQ ranges, each range leading to a corresponding educational category, which itself would direct children to the vocational category for which they were "best adapted." In addition, Burt specified the approximate proportion of the population that was expected to fall into each classification. Only the highest range, encompassing a mere tenth of a per cent of the population, would receive a university education, leading to a career in the professions or to a "higher administrative" position. The next two ranges, comprising roughly only another 11% of the population, would enjoy the advantages of what Burt called "higher grade schools," which would prepare them for executive or technical positions. The two largest categories in the middle of the eight ranges, including slightly more than three quarters of the population, would be prepared to be "workers," either "skilled" or "semi-skilled." The two next-to-lowest ranges of the IQ distribution would prepare the "dull" and "feebleminded" 11% of the population for "unskilled" and "casual" labor respectively, and the lowest category contained that tenth of a per cent of the population who were institutionalized "imbeciles and idiots."

Thus, through the early assessment of IQ scores, the school system would not only determine the educational and vocational futures of individual students but would also systematically ensure that a suitable proportion of persons be prepared for each socioeconomic layer. This was the appropriate role for the schools, according to Burt. It was the "duty of the State, through its school service," he wrote,

first to find out to what order of intelligence each child belongs, then to give him the education most appropriate to his powers, and finally, before it leaves him, to place him in the particular type of occupation for which nature has marked him out (Burt, 1925, p. 741).

Education would furnish what Burt called "the key ... to social efficiency ... vocational fitness – a place for every man and every man in his place" (1918, p. 18).

For the quarter century from the end of the war until his death, Burt was indisputably the most authoritative exponent of genetic influence on IQ, quickly mastering the newly developing discipline of behavioral genetics, to which he made sophisticated theoretical contributions, and compiling unique sets of data on various kinship correlations (also later suspected of fabrication). As the acknowledged leader in this field, Burt was also a major influence on the two psychologists who would succeed him as the most prominent, contemporary spokespersons for both the fact and the importance of the heritability of IQ: Hans J. Eysenck and Arthur R. Jensen.

Eysenck, who studied under Burt, was arguably the most well known research psychologist in the world at his death in September, 1997, the author of some 50 books and 1000 articles. He was indisputably the most ardent hereditarian scientist, claiming, for example, that cigarette smoking and lung cancer are both largely the result of genetic predisposition, thus explaining the association between the two while dismissing tobacco as a causal agent (Eysenck, 1985; Eysenck, 1991).<sup>3</sup> He has also maintained, not just that all important personality traits, and especially IQ, are highly heritable, but that "the whole course of a child's intellectual capabilities is largely laid down genetically, and even extreme environmental changes ... have little power to alter this development" (Eysenck, 1973, p. 111).

While other social scientists have made proposals bearing coincidental similarity to the Platonic social order, Eysenck (1979; see also Eysenck, 1978; Eysenck, 1981) regularly offered the fable of the metals as a conscious model for contemporary society to emulate: some people really *were* "fit to be rulers," others "to cultivate the soil or manufacture goods;" and the state really *was* "doomed to disaster" should its "guardianship" fall into the hands of the latter (Eysenck, 1979, p. 9). Without acknowledging that the fable had been originally offered as a myth designed to keep social classes in their place, Eysenck pronounced its two underlying assumptions valid. It was now "universally accepted," he declared, that "the ultimate survival ... of any civilized society depends on the acceptance of the division of labor" (1979, p. 224). And, he observed, with the obligatory acknowledgment of some minor environmental influence, science had demonstrated that individual differences were "to a large extent inborn" (p. 224). Indeed, according to Eysenck, Plato represented the first recorded recognition of "genetic causes in accounting for individual differences in intellect and personality" (1979, pp. 8-9).

Thus, "Plato was indubitably right," Eysenck concluded: Since "nature sets limits to our endeavours," it was essential "to allocate tasks and duties according to ... innate abilities" (1979, p. 225) - in Plato's words, "to scrutinize each child to see what metal has gone to his making, and then allocate or promote him accordingly" (1979, p. 9). Fortunately, he noted, through "promoting men of intelligence ... modern meritocratic society" had come "close to fulfilling ... some of Plato's dreams" though he warned that intelligence was not the only quality distinguishing "men of gold from those of silver or those of iron and brass" (p. 9).

This attention to other traits was not to be construed as a sign of expanded possibilities for individuals in Eysenck's ideal state - as if, for example, exceptional effort could compensate for modest ability, allowing a manual worker of "iron" to aspire to a "silver" executive position. Rather than an indication of greater flexibility, Eysenck's interest in considering factors beyond intelligence would only introduce further rigidity, providing justification for the placement of individuals into undesirable

positions, based not only on their meager "inborn" intellectual ability but also on their "inborn" personality traits which "suit them to different types of jobs" (Eysenck, 1973, p. 266).

Taken together, Eysenck explained, these heritable factors often indicated that some people were genetically suited for particular jobs and would thus find them enjoyable even though the work might seem dangerous, hard, and dirty to others. Most people, for example, would find coal mining very unappealing only because it is not genetically appropriate for them, but the miner's personality was suited by nature for a job which allows him to "determine for himself just how to organize his work." Or auto assembly work, "described as 'soul destroying'" only by those genetically unfit for the position, was "in fact liked by many of the people 'on the line'" because it suited their personality, protecting them "from interruption by other people" and leaving them "free to attend to [their] own thoughts" (Eysenck, 1973, p. 167). Only by recognizing the "inexorable biological facts" and learning to "co-operate with nature," Eysenck declared (p. 270), would it be possible to attain the ideal society, which "put round pegs into round holes," thereby making "life more pleasant and happier" for everyone (p. 269).

Beyond emphasizing that aspirants for professional education should be selected on the basis of IQ score, Eysenck had little specific to say about the role of education in creating the Platonic state. Judging from his insistence (Eysenck, 1975), however, that the process of instruction should be geared to a student's heritable traits - that is, those same intellectual and temperamental characteristics which would define his or her genetically appropriate place in the society - there could be little doubt that education would be instrumental in directing each individual toward this proper niche.

The Berkeley psychologist Jensen, on the other hand, has proposed very specific educational methods as a consequence of the heritability of IQ. Referred to in *Science* as "the patriarch of modern U.S. IQ research" (Holden, 1996, p. 644), Jensen is particularly well known to the public for hypothesizing that blacks are genetically less intelligent than whites in an article in the *Harvard Educational Review* (Jensen, 1969) that triggered one of the bitterest controversies in the history of American

psychology and led a science writer for the *New York Times Magazine* to coin the term "Jensenism" for "the theory that IQ is largely determined by the genes" (Edson, 1969, p. 10). Less well remembered, however, is Jensen's proposal in the same article for structuring education as a consequence of genetic influence on intelligence.

Like Terman, who also remarked on the ability of many "feeble-minded" children to pass for normal, Jensen found many disadvantaged students with test scores in the "retarded" range to be "brighter than their IQs would lead one to expect." He even developed a measure of "associative learning ability," which demonstrated that many of these lower class and minority children could "learn something new and unfamiliar, right in the test situation" (1969, p. 111) as quickly as middle class children with much higher IQ scores. But, Jensen soon decided, such students "*appear* quite bright and quick ... and ... linguistically precocious [emphasis added]" only as long as they learn through repetition and memorization; when, eventually, "learning and understanding become one and the same," they are "almost totally handicapped" (Jensen, 1974a, p. 230; see, also, Jensen, 1972, pp. 289-90).

From these observations Jensen concluded that there were two separate and distinct mental abilities. Level I, "of much more importance ... in primitive cultures," and required "in many manual occupations" (Jensen, 1972, p. 234), was merely "a recording and playback on cue" (Jensen, 1974a, p. 225), involving no transformation or mental manipulation of any kind; "a tape recorder," he pointed out, "exemplifies Level I ability" (Jensen, 1973, p. 55). In contrast, Level II was synonymous with real "intelligence, that is, analytical understanding, reasoning, abstraction, conceptual thinking" (Jensen, 1972, p. 292); more highly related to the "demands of schooling and higher occupational status" (Jensen, 1974a, p. 231), it was an indicator of ability to "function in ... key roles" in the society (Jensen, 1969, p. 14).

The problem, as Jensen described it, was how to educate that mass of children whose Level I abilities were adequate, but who were genetically deficient in Level II, children who could memorize but not comprehend. They had been notably

unsuccessful in school so far, he explained, because classroom instruction in the United States had "evolved in relation to a relatively small upper-class segment of Anglo-European stock" (Jensen, 1968, p. 5; also Jensen, 1974b, p. 217), capitalizing on that group's superior Level II abilities. Although the less intelligent students were incapable of benefitting from these methods, their education could still be salvaged, according to Jensen, by eschewing futile attempts to produce comprehension on their part in favor of Skinnerian "operant conditioning techniques;" they could not grasp principles or concepts but were nevertheless "trainable" through rote association and repetition (Jensen, 1968, p. 38).

Of course, relieving disadvantaged students of the burden of understanding would systematically channel them, by Jensen's own calculation, into education for relatively menial occupations; higher status positions and "key roles" in the society were reserved for those taught, not merely to parrot, but to reason and analyze. Nor would this result be an unintended effect of the operant conditioning approach. Students should not be encouraged, wrote Jensen, to pursue "educational and occupational goals which they are extremely unlikely to achieve" (1975b, p. 68). Relegating them to the lower tier of an educational caste system would thus protect them from their own unrealistic aspirations. Moreover, children were to be directed down one of these two socioeconomic paths at the very beginning of their education. Jensen reported his observations of a first grade class of "culturally disadvantaged" children who were already falling behind as a result of their teacher's well-intentioned but ineffectual efforts to encourage "conceptual brightness" rather than rote memorization (1972, p. 279). And his famous *Harvard Educational Review* (Jensen, 1969) article pronounced Head Start and other pre-school programs a failure because they too had assumed that all children could be instructed by methods which had proven successful with previous generations. Though perhaps less rigid than the proposals of the some of the other hereditarians, Jensen's view of education would nevertheless direct students toward their appropriate class position.

The most notable, recent discussion of heritability has taken place, not in the professional journals, but in *The Bell Curve*, a book written by the Harvard psychologist Richard J. Herrnstein and the conservative political theorist Charles Murray, and clearly intended for the public. Though published in 1994, *The Bell Curve* was an expansion of Herrnstein's controversial 1971 article in the *Atlantic Monthly*, arguing that, due to the heritability of IQ, greater equality of opportunity would inevitably lead to a genetic meritocracy, in which social classes were separated by "biological barriers" – at the top those with superior intellectual ability, at the bottom a "low-capacity residue that may be unable to master the common occupations, cannot compete for success and achievement and are most likely to be born to parents who have similarly failed" (Herrnstein, 1971, p. 63).

More than two decades later, *The Bell Curve* foresaw an acceleration of this process, caused by the growth of "high-IQ professions" created by technology, and leading to the formation of a "new class, the cognitive elite," whose interests have converged with the affluent, producing "an unprecedented coalition of the smart and the rich" (Herrnstein & Murray, 1994, p. 518). According to Herrnstein and Murray, who claimed to be "not even really projecting but reporting" (p. 526), the dominant ideology of this coalition is heading toward "a new kind of conservatism ... along Latin American lines, where to be conservative has often meant doing whatever is necessary to preserve the mansions on the hills from the menace of the slums below" (p. 518). To protect themselves from a low-IQ underclass, which is "not just increasingly expendable in economic terms ... [but soon to] become a net drag" (p. 520), the cognitive elite will implement a "custodial state ... a high-tech and more lavish version of the Indian reservation for some substantial minority of the nation's population," which will become "more and more totalitarian" (p. 526). The only way to avoid this unpleasant prospect, according to Herrnstein and Murray, is to "turn ... back to the ancient concern with place" (p. 535).

Thus, *The Bell Curve* offered a cautionary tale about the contemporary risks of failing to adopt the Platonic social model. By underestimating the importance of genetic differences in

ability between persons, a widespread, "egalitarian" political ideal had fostered illusory hopes for improvement in the abilities of the cognitive underclass and correspondingly unrealistic expectations about their place in society. Instead of vain and misguided attempts to overcome genetic disadvantage, the real need was to find "valued places" appropriate for everyone from the "natural aristocracy" of the cognitive elite to those at the lower end of the intelligence spectrum. Once convinced of their intellectual shortcomings, presumably individuals in the latter category would accept their unenviable station, if not cheerfully, then at least without resentment toward their betters, knowing that it was merely the proper social reflection of their genetic merit.

Education would, of course, play a significant role in preparing individuals for their fitting places in the society envisioned by *The Bell Curve*. Terming it a "reality" that in a system of mass education many students will be genetically incapable of achieving basic literacy, Herrnstein and Murray appeared to suggest that the attempt to educate this cognitive underclass would be a waste of resources, declaring that "For many people, there is nothing they can learn that will repay the cost of the teaching" (p. 520). In contrast, those at the other end of the cognitive spectrum – "the people who count" (p. 443), as Herrnstein and Murray frankly called them – required a highly specialized education, one designed to foster the "wisdom" and "virtue" necessary for their eventual positions of authority and influence. This special preparation of the "most gifted" for their roles would then contribute to "the ultimate welfare of the disadvantaged" (p. 442), observed *The Bell Curve*, presumably because the underclass would enjoy the benefits of governance by a properly trained elite. For Herrnstein and Murray, as for their predecessors, the heritability of IQ provided the justification for an educational system that would institutionalize inequality.

Thus, despite some differences between them, throughout the century the psychologists preaching the enormous importance for education of genetic influence on IQ have invariably conjoined a scientific conclusion with a particular ideological view of both the nature of the state and the purpose of education. Their view of the state, of course, has been the modern, psychometric

version of the ideal society described by Plato and Burke. But it also has much in common with Aldous Huxley's technocratic dystopia *Brave New World*, in which each individual is preordained for one of the five social classes that meet the society's needs and those assigned to lower class positions are programmed to accept and even love their servitude. In the foreword to his novel, Huxley warned that one of the characteristics of "the new totalitarianism" would be "a fully developed science of human differences, enabling government managers to assign any given individual to his or her proper place in the social and economic hierarchy" (1946, p. xvii). He continued by remarking - in words eerily reminiscent of Eysenck's desire to "put round pegs in round holes" - that "round pegs in square holes tend to have dangerous thoughts about the social system and to affect others with their discontents" (pp. xvii-xviii). Both the "Brave New World" and the psychometric state would be organized specifically to avoid this source of social instability.

The purpose of education in such a society would be to serve the state by preparing individuals for their psychometrically determined place. The underlying assumption of this view was expressed most bluntly by one of Terman's contemporaries, the University of Chicago Professor Frank N. Freeman, who maintained that education is *not*

a gift by the state to the individual for the benefit of the individual. The only valid conception of public education is that it is for the purpose of fitting the individual to take his place in the life of the community .... The detailed organization of the school must be based upon the broader conception of its function. (Freeman, 1924, p. 171)

The preparation offered by the school, in Freeman's description, was to include not only acquisition of the relevant skills for, but also development of the appropriate adjustment to, one's fitting place. "I may be conscious of the fact," he wrote,

that my neighbor has a better house than mine; that he drives a Cadillac while I drive a Ford; that he wears better clothes; that he receives promotion in his profession or his business more rapidly than I do ... that he has more fame and more prosperity than I have. I may even suffer

the pain of losing my position or of being forced to accept a considerably poorer one than I had expected .... It is the business of the school to help the child to acquire such an attitude toward the inequalities of life, whether in accomplishment or in reward, that he may adjust himself to its conditions with the least possible friction. (1924, p. 170)

In the psychometric state education would not only place the round pegs in the round holes but also ensure, in Huxleyian fashion, that they are not unhappy to be there.

Education, in this view, does not exist for the individual; the individual exists for education. In the former case, the student is the *subject* of the process, his or her interests are predominant, and education is considered an opportunity for exploration, challenge, and growth – as John Dewey once described it, “to discover and release individualized capacities” (1922, p. 61). In the view espoused by the hereditarian psychologists, however, the student is the *object*, to be manipulated in a process designed in the interests of the state.

Of course, it might be the case that IQ heritability has some *other* practical application to education, quite separate from its ideological exploitation. Unless, however, one includes attempts to justify inequities in educational funding on the basis of genetic shortcomings – more a political tactic than an “application” to the process of education – preparation for the occupational destinies putatively dictated by test score has constituted heritability’s only practical relevance. As Carl Bereiter observed long ago, whatever the relationship between genes and IQ, the “heredity-environment issue [is] ... irrelevan[t] to instructional practice,” and teachers must ignore “the question of causation” (1980, p. 80). Indeed, the evolution of Bereiter’s own thinking from “unbridled’ environmentalis[m]” to a greater appreciation of genetic influence, he wrote, “has not affected my behavior as a practical educator in any way” (p. 80); even “if genetic factors are admitted as possible determinants of the child’s behavior, there is no choice but to go on from where the child is at present – that is, do the best you can to teach him” (p. 82).

Moreover, as hereditarian psychologists have developed a more sophisticated understanding of behavior genetics, they have

abandoned naïve and inaccurate terms like “innate” or “inborn,” realizing that heritability – the ratio of genetic to observed variation in a trait – has nothing to do with alterability. That is, a high heritability does not preclude the possibility of increasing intelligence – though the hereditarian psychologists are generally pessimistic about the likelihood of actually finding a method to do so in practice<sup>4</sup> (see, for example, Jensen, 1975a) – and, as a consequence, it is doubtful that there is any practical point to this statistic, whatever its numerical value. “Indeed,” decided Christopher Jencks, after “some years of work” on the heritability of IQ, “our main conclusion ... is that mathematical estimates of heritability tell us almost nothing about anything important” (Jencks et al., 1972, p. 76; see, also, Jencks, 1980). Though more recent studies (e.g., Bouchard, Lykken, McGue, Segal, & Tellegen, 1990) may have provided “better” estimates, their production remains an academic exercise devoid of practical relevance. Whether cognitive abilities can be increased is an important question, but an estimate of IQ heritability has no bearing on the answer.

Thus, whatever theoretical value there may be in studies of IQ heritability, their practical application in education has been primarily to justify an ideology first proposed long before the invention of IQ tests or the discovery of genes. And it is an ideology that, at an early age, would restrict each child’s range of interests, ultimately directing students only toward those places deemed appropriate for them by others.

#### NOTES

1. The term “conservative” is used here as defined in the *Encyclopedia of Philosophy* (Edwards, 1972) to refer to an attachment to traditional customs and institutions and a consequent “hostility” to appeals to abstract rights, individual choice, and the growth of democracy. According to the *Encyclopedia*, Burke is considered “by many as the greatest of conservative thinkers” (p. 195), though conservatism has “deep philosophical roots” dating back to Plato and Aristotle.

2. The flaws in Burt’s data were first noted by Kamin (1973). The first accusation of fraud appeared in Gillie (1976) and was apparently confirmed by Hearnshaw (1979), Burt’s biographer. Hearnshaw’s verdict has since been challenged by Joynson (1989) and Fletcher (1991). A detailed analysis of the charges can be found in Mackintosh

(1995). New data strengthening the case against Burt are presented in Tucker (1997).

3. Reviewers of Eysenck's book (1991) concluded that his "real goal is not to evaluate the role of smoking in disease. Rather he seems more interested in justifying and defending tobacco use. It is hard to discern a theoretical or scholarly intent here" (Baker & Fiore, 1992, p. 1016).

4. Herrnstein and Murray misinterpret the concept of heritability when they write that "Because intelligence is less than completely heritable we can assume that, some day, it will be possible to raise the intelligence of children through environmental interventions" (1994, pp. 413-414). In fact, even a heritability of 100% would not preclude a new intervention from increasing intelligence.

#### REFERENCES

- Baker, T.B. & Fiore, M.C. (1992). Elvis is alive, the Mafia killed JFK, and smoking is good for you. *Contemporary Psychology*, 37, 1014-1016.
- Bereiter, C. (1980). The relevance of genetic ideas to education. In L.J. van der Kamp, W.F. Langerak, & D.N.M. de Gruijter (Eds.), *Psychometrics for educational debates* (pp. 73-82). Chichester: Wiley.
- Boring, E.G. (1959). Lewis Madison Terman: 1877-1956. *Biographical Memoirs of the National Academy of Sciences*, 33, 414-440.
- Bouchard, T.J., Lykken, D.T., McGue, M., Segal, N.L., & Tellegen, A. (1990). Sources of human psychological differences: The Minnesota study of twins reared apart. *Science*, 250, 223-228.
- Burke, E. (1955). *Reflections on the revolution in France*. Indianapolis: Bobbs-Merrill.
- Burt, C. (1918). Individual psychology and social work. *Charity Organization Review*, 43, 4-19.
- Burt, C. (1925). Psychological tests for scholarship and promotion. *School*, 13, 734-743.
- Burt, C. (1955). The evidence for the concept of intelligence. *British Journal of Educational Psychology*, 25, 158-177.
- Burt, C. (1972). The inheritance of general intelligence. *American Psychologist*, 27, 175-190.
- Dewey, J. (December 13, 1922). Individual equality and superiority. *New Republic*, pp. 61-63.
- Edson, L. (August 31, 1969). Jensenism, n. the theory that IQ is largely determined by the genes. *New York Times Magazine*, pp. 10-11.
- Edwards, P. (Ed.). (1972). *Encyclopedia of philosophy*. New York: Macmillan Co. and Free Press.

- Eysenck, H.J. (1973). *The inequality of man*. London: Temple Smith.
- Eysenck, H.J. (1975). Equality and education: Fact and fiction. *Oxford Review of Education*, 1, 51-58.
- Eysenck, H.J. (1978). Introduction to the reprint of F. Galton, *Hereditary genius*. London: Julian Friedmann.
- Eysenck, H.J. (1979). *The structure and measurement of intelligence*. New York: Springer-Verlag.
- Eysenck, H.J. & Kamin, L. (1981). *The intelligence controversy*. New York: John Wiley and Sons.
- Eysenck, H.J. (1985). Personality, cancer, and cardiovascular disease: A causal analysis. *Personality and individual differences*, 6, 535-556.
- Eysenck, H.J. (1991). *Smoking, personality, and stress: Psychosocial factors in the prevention of cancer and coronary heart disease*. New York: Springer-Verlag.
- Fletcher, R. (1991). *Science, ideology, and the media*. New Brunswick, NJ: Transaction.
- Freeman, F.N. (1924). Sorting the students. *Educational Review*, 68, 69-74.
- Gillie, O. (October 24, 1976). Pioneer of IQ faked his research findings. *Sunday Times* (London), p. 1.
- Goddard, H.H. (1920). *Human efficiency and levels of intelligence*. Princeton: Princeton University Press.
- Hearnshaw, L.S. (1979). *Cyril Burt: Psychologist*. Ithaca, NY: Cornell University Press.
- Herrnstein, R.J. (September, 1971). I.Q. *Atlantic*, 43-64.
- Herrnstein, R.J. & Murray, C. (1994). *The Bell Curve*. New York: Free Press.
- Holden, C. (1996). Wiley drops IQ book after public furor. *Science*, 272, 644.
- Huxley, A. (1946). *Brave New World*. New York: Harper & Row.
- Jencks, C. (1980). Heredity, environment and public policy reconsidered. *American Sociological Review*, 45, 723-736.
- Jencks, C., Smith, M., Acland, H., Bane, M.J., Cohen, D., Gintis, H., Heyns, B. & Michelson, S. (1972). *Inequality*. New York: Basic Books.
- Jensen, A.R. (1968). Social class, race, and genetics: Implications for education. *American Educational Research Journal*, 5, 1-42.
- Jensen, A.R. (1969). How much can we boost IQ and scholastic achievement. *Harvard Educational Review*, 39, 1-123.
- Jensen, A.R. (1972). *Genetics and education*. New York: Harper & Row.
- Jensen, A.R. (1973). *Educational differences*. London: Methuen.

- Jensen, A.J. (1974a). What is the question? What is the evidence? In T.S. Krawiec (Ed.), *The psychologists, Vol.II* (pp. 203-244). New York: Oxford University Press.
- Jensen, A.R. (1974b). Equality for minorities. In H.J. Walberg (Ed.), *Evaluating educational performance* (pp. 175-221). Berkeley, CA: McCutchan.
- Jensen, A.R. (1975a). The meaning of heritability in the behavioral sciences. *Educational Psychologist, 11*, 171-183.
- Jensen, A.R. (1975b). The price of inequality. *Oxford Review of Education 1*, 59-71.
- Joyson, R.B. (1989). *The Burt affair*. London: Routledge.
- Kamin, L.J. (1973). *Heredity, intelligence, politics, and society*. Invited address, Eastern Psychological Association, Washington, DC.
- Mackintosh, N.J. (Ed.) (1995). *Cyril Burt: Fraud or framed?* Oxford: Oxford University Press.
- Minton, H.L. (1988). *Lewis M. Terman: Pioneer in psychological testing*. New York: NYU Press.
- Plato (n.d.). *The republic* (B.Jowett, Trans.). New York: Modern Library.
- Report of committee on classification of feeble-minded. (1910). *Journal of Psycho-Asthenics, 15*, 61-62.
- Seago, M.V. (1975). *Terman and the gifted*. Los Altos, CA: William Kaufmann.
- Spearman, C. (1927). *The abilities of man*. New York: Macmillan.
- Terman, L.M. (1914). The significance of intelligence tests for mental hygiene. *Journal of Psycho-Asthenics, 18*, 119-127.
- Terman, L.M. (1916). *The measurement of intelligence*. Cambridge, MA: Riverside Press.
- Terman, L.M. (1919). *The intelligence of school children*. Boston: Houghton Mifflin.
- Terman, L.M. (1920). The use of intelligence tests in the grading of school children. *Journal of Educational Research, 1*, 20-32.
- Terman, L.M. (1922a). Adventures in stupidity: A partial analysis of the intellectual inferiority of a college student. *Scientific Monthly, 14*, 24-40.
- Terman, L.M. (1922b). The psychological determinist; Or democracy and the I.Q. *Journal of Educational Research, 6*, 57-62.
- Terman, L.M. (1922c). Were we born that way? *World's Work, 44*, 655-660.
- Terman, L.M. (1924). The possibilities and limitations of training. *Journal of Educational Research, 10*, 355-343.
- Terman, L.M. (1975). *Genius and stupidity*. New York: Arno Press. Original work published 1906.

Terman, L.M., Dickson, V.E., Sutherland, A.H., Franzen, R.H., Tupper, C.R., & Fernald, G. (1922). *Intelligence tests and school reorganization*. Yonkers-on-Hudson, NY: World Book.

Tucker, W.H. (1997). Re-reconsidering Burt: Beyond a reasonable doubt. *Journal of the History of the Behavioral Sciences*, 33, 145-162.

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