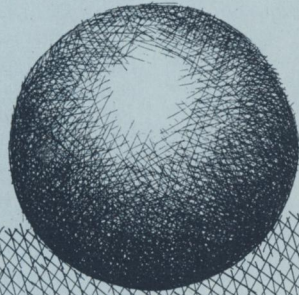


# Objectivity and the



## Genetics of I.Q.: A Reply To Steven Selden



by Arthur R. Jensen

Like those who still insist that the earth is flat, Steven Selden persists in dogmatic disregard of available evidence, answers Mr. Jensen.

**T**HE TWO MAIN messages of Steven Selden's essay seem to be 1) that the *questions* addressed by scientific research are selected on the basis of the subjective personal and social values of scientists and 2) that the heritability of human intelligence as indexed by I.Q. is still largely in doubt. My position on both points can be stated briefly.

### CHOICE OF RESEARCH TOPIC

It is a regrettable misconception that I have ever denied that a scientist's *choice* of a particular subject for research is influenced by such factors as personal interest, a priori beliefs, social values, and intuition. I am surprised that Selden could have come to a contrary conclusion.

Scientific investigation is characterized neither by its particular subject matter nor by the questions it seeks to answer, which are entirely open to individual choice, but by its methods of objective inquiry and by the fact that it offers its evidence to public scrutiny. While indiscriminate, unfocused intellectual curiosity cannot advance scientific knowledge, subjective choice of problems for study is nonetheless essential and inevitable. The universe offers an infinite variety of phenomena, all potentially grist for the mill of scientific inquiry. Researchers have necessarily been highly selective regarding the phenomena on which they focus their investigations, and this is as true in the physical and biological sciences as it is in the behavioral sciences.

Once the choice of a research problem has been made, however, the scientist is no longer free to pick and choose among the new phenomena and questions that are turned up in the course of the investigation. Although certain puzzling questions may have to be put on the back burner until subsidiary, but more tract-

*ARTHUR R. JENSEN is a professor of educational psychology in the School of Education at the University of California, Berkeley.*

able, questions have been answered, they cannot be entirely ignored or dismissed.

For example, a researcher who chooses to investigate the causes of individual differences in scholastic performance cannot then ignore such reliable phenomena as the distinctive pattern of correlations between individuals' scores on mental tests that are highly predictive of scholastic performance and the degree of kinship among the individuals. Yet environmentalist psychologists who would like to believe that individual differences arise solely from inequalities in environmental advantages have either ignored or dismissed the evidence of kinship correlations. They have not developed a testable theory that could explain these striking correlations in strictly environmental terms, nor am I aware that they have even made a systematic attempt to do so. Thus they have had to ignore or condemn a mass of highly relevant and reliable data in order to maintain their preconceived theoretical stance.

The best-known example of such ideological corruption of science in modern times is probably the case of the Soviet biologist, T. D. Lysenko. It illustrates the practical consequences of clinging to a falsified theory.

For ideological reasons, the Communist party under Stalin favored Lysenko's view of heredity, which had long been disproven by western scientists. In brief, Lysenko believed that characteristics acquired through environmental influences were inherited. The practical consequences of enforcing the application of this fallacious theory proved disastrous for Soviet agriculture. Finally, the economic penalty of following Lysenko's theory proved too high for the Soviet government to pay, and, after Stalin's death, Soviet leaders were compelled to adopt the results of genetic research based on truly scientific principles. If applied genetics and agriculture are liable to the penalty exacted by dogmatically following a theory, are applied psychology and education any less at risk?

One value of the objectivity of the scientific enterprise is that it can cut through the ideologies of "hereditarian" and "antihereditarian" attitudes, whatever their diverse historical and philosophical roots. It can discover the extent to which human variation in those physical and mental traits that people deem important is conditioned by genetic factors and their interaction with the environment. That is the essence of the science of behavioral genetics. It is not concerned with the promulgation of "hereditarian attitudes."

I put no stock in the type of criticism based on the remote origins of any particular field of study. Many of the discoveries that led up to the modern science

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of chemistry can be traced to the medieval alchemists, who were motivated by the now completely abandoned and scientifically discredited aim of transmuting base metals into gold. But it is in no way a discredit to the modern field of chemistry to point out its historical beginnings in the misguided goals of alchemy. By the same token, whatever may have been the virtues or the errors of the early pioneers in human genetics, such as Sir Francis Galton, they cannot legitimately be used to credit or discredit the findings of present-day researchers in the field. Would anyone be impressed by a criticism of today's automobiles based on the shortcomings of the Model T?

We should also be sure to distinguish between *genetics* and *eugenics*. Genetics is the science of heredity. Eugenics is a philosophical position concerning the value and methods of improving the quality of human life by genetic means, presumably informed by the science of genetics. Galton, who coined the term *eugenics* and founded the Eugenics Society in London in 1904, believed that the future course of human evolution could be guided by "the intelligent action of the human will." He wrote in his memoir in 1908, "Man is gifted with pity and other kindly feelings; he has also the power of preventing many kinds of suffering. I conceive it to fall well within his province to replace Natural Selection by other processes that are more merciful and not less effective. This is precisely the aim of eugenics." Indeed, the foreseeable human misery occasioned by a worldwide population explosion may lend renewed cogency to Galton's words.

Whether one agrees or disagrees with the idea of eugenics, however, is a philosophical and moral question, not a scientific one. In this respect, it is akin to the questions that surround the issue of contraception. We can scientifically test the relative efficacy of various methods of contraception, but scientific research cannot tell people how to make the moral choice of whether or not to use birth con-

trol. Science does not presume to prescribe; it can only describe certain probable outcomes of different courses of action.

Incidentally, eugenics is not so universally regarded as the derogatory term that Selden's use of it implies. The fact that Galton espoused eugenics and that such pioneers in educational research as Thorndike, Judd, and Hall were favorably disposed toward Galton's ideas is not at all unanimously viewed as being to their discredit.

### HERITABILITY OF INTELLIGENCE

This is not the forum for debating the issues surrounding the heritability of intelligence; they depend on complex models and methods of quantitative genetics brought to bear on masses of empirical data involving correlations between kinship and measures of mental ability. The evidence for a substantial genetic component in individual differences in I.Q. (and scholastic achievement as well) is actually beyond any reasonable scientific doubt among those who are technically expert in behavioral genetics and who actually do research in the field. The fact that genetic factors are a major source of individual differences in I.Q. is no longer even argued among the experts. The questions of scientific interest have long since shifted to more refined and technical issues concerning the mechanisms of the genetic contribution — dominance, recessiveness, interactions among genes, and interactions between genes and environment. Contrary to the position of extreme skepticism that Selden seems to favor, a recent edition of the *Encyclopaedia Britannica* expresses the view of the vast majority of experts in the field:

Concerning the extent of genetic determination in human intelligence, most investigations have yielded heritability estimates between 70-80 percent. Since such values are relative to the population studied and to the method of estimation, some disagreement should be expected. It seems most unlikely, however, that genotype contributes less than 50 percent of the variability, and it is conceivable that the figure is close to 80 percent.<sup>1</sup>

Selden's doubt about the Russian study of identical and fraternal twins is based entirely on conjecture and surmise, rather than on a critical examination of the study itself. The supposed contaminating effects that he imagines would undermine the confidence of the main finding of the study — namely, a heritability coefficient of .78 for I.Q. — would actually be just as likely to *lower* the heritability coefficient as to raise it. Indeed, in a study of twins,

culture bias in I.Q. tests would be much more likely to lower than to raise the estimated heritability of I.Q.

Leon Kamin's book, *The Science and Politics of I.Q.*,<sup>2</sup> which seems to be Selden's mainstay, is a striking example of the dictum that criticism can sometimes be even more fallible than the things criticized. Selden's enthusiastic acceptance of Kamin's exceedingly selective and biased critique of the literature on heredity and I.Q. is not shared by the prominent researchers in behavioral genetics who have reviewed Kamin's book. For example, David Fulker states that Kamin's account "lacks balanced judgment and presents a travesty of the empirical evidence in the field."<sup>3</sup> Sandra Scarr characterizes Kamin's book as "a disservice both to

science and to the advancement of social equality."<sup>4</sup>

In my book, *Straight Talk About Mental Tests*,<sup>5</sup> the nature of the evidence and of genetic theory concerning the inheritance of mental ability has been explained in terms easily understood by intelligent nonspecialists. More elaborate and technical explanations are also available.<sup>6</sup> The plain fact is that, when all the existing evidence is considered, it is virtually impossible to make any reasonably coherent and theoretically consistent scientific interpretation that does not refer to a polygenic model. This conclusion is denied today by only a small band of antihereditarian ideologues, whose dogmatic disregard of the evidence forces them beyond the pale of science, not unlike the

few people who still insist that the earth is flat.

1. *Encyclopaedia Britannica*, 1975 ed., vol. 8, p. 1148.

2. Leon Kamin, *The Science and Politics of I.Q.* (Hillsdale, N.J.: Erlbaum, 1974).

3. David W. Fulker, review of Leon Kamin, *The Science and Politics of I.Q.*, in *American Journal of Psychology*, vol. 88, 1975, p. 519.

4. Sandra Scarr-Salapatek, review of Leon Kamin, *The Science and Politics of I.Q.*, in *Contemporary Psychology*, vol. 21, 1976, p. 99.

5. Arthur R. Jensen, *Straight Talk About Mental Tests* (New York: Free Press, 1981).

6. Sandra Scarr and Louise Carter-Saltzman, "Genetics and Intelligence," in Robert J. Sternberg, ed., *Handbook of Human Intelligence* (Cambridge: Cambridge University Press, 1982), pp. 792-896; and Philip E. Vernon, *Intelligence: Heredity and Environment* (San Francisco: W. H. Freeman, 1979), p. 262. □

# One-Pulse Words: Short, Sweet, and to the Point

by Anne Davis Toppins

Here's a fine point:  
Great truths need  
not be said in big  
words.

ONCE A DAY I try to state in short words what I think. The words I use are words of one pulse. The rest of the day I use words that are two-, three-, or six-pulse words — just the way school folks ought to talk. But each day for a short time I work at plain speech. My aim is to clear my head.

I learned this mode of speech a few years back. Dave Blum wrote of the Club for One-Pulse Words, a group of friends who write and speak this way as much as three hours a day.\* The group lives by these rules:

1. Use no words of more than one pulse.

2. Words that make use of a small

\*Dave Blum, "Some Guys I Know March to the Beat of One Weird Drum," *Wall Street Journal*, 15 July 1982, p. 1.

ANNE DAVIS TOPPINS (University of Alabama Chapter) is an associate professor in the College of Education at the University of Alabama, Tuscaloosa.

mark (such as "don't") are fine but should be used with care.

3. Folks' names that have more than one pulse should be changed to code words.

4. Don't be a pest.

Their point is that "words don't have to be long to be good."

To help you get a grip on this kind of speech, look at how I have changed what most school kids say each day:

I pledge my troth to the flag of the states that are joined in this land and to the form of rule for which it stands; one large state with trust in God, not to be split, in which all can be free and for whom the law is just.

See what I mean? Some of this may seem forced, and it is. I'm new at the task, and it's hard to speak in one-pulse words. The art is to use them so well that they sound smooth. Those skilled in the craft have done this for years. The Bard, whose first name is Will and whose last name is a