

Victim of Scientific Hoax

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Cyril Burt's report of a preponderant genetic contribution to mental ability in monozygotic twins raised apart, flew in the face of two of this century's most powerful ideas: environmentalism and genetic equalitarianism. In 1961 Henry Garrett, a president of the American Psychological Association, referred to these as the "equalitarian dogma." In its strongest form, this dogma holds that all social groups—classes, races, and sexes—are genetically created equal in intellectual capacity and that disproportionate achievement was entirely the result of opportunity and other social factors.

Cyril Burt is featured in many psychology textbooks, not for his scientific discoveries, which were many, but for his alleged misrepresentation of data. By implication, the genetic basis of giftedness and intelligence is then held still not to be established. Meanwhile, new evidence from studies of twins raised apart have corroborated Burt's high heritability estimate, as have independent data from adoption and other family studies. Examination of the relationship of brain size to intelligence, and of race, sex, and social rank differences in brain size, suggest that Henry Garrett was correct to label the equalitarian dogma "the scientific hoax of the century." Cyril Burt was one of many victims of this hoax.

Denial of racial differences in IQ seems to have been what mostly fuelled the attack on Burt's integrity.

Burt was concerned with differences of social class and only rarely strayed into discussion of race or gender differences. He held that the British upper classes contained a larger proportion of high genetic intelligence than did the British lower classes, even though, in absolute numbers, there would be more gifted children outside of the upper classes than inside of them. (Child prodigies of humble origin were of special interest to him.) Because of his belief in the degree of overlap in the distributions, and also because of his belief that entrance into advanced school systems should be based on test and examination performance rather than the privilege of birth, Burt was considered a liberal in his day.

Burt's "day" was the 1920s and 1930s. He was born in 1883, the son of a medical doctor, and entered Oxford University in 1902 to read classics. While there he became enamored with the psychology of mental ability, a passion that was to last throughout his long life. He was a student of William McDougall, the instinct theorist and helped to collect data for Francis Galton, cousin to Charles Darwin. In 1913, Burt became an educational psychologist for London County Council. In 1924 he became professor of educational psychology, and in 1932 he succeeded to the chairmanship of the psychology department at University College. At this time he began to publish his studies showing a high heritability for IQ. In 1946 he was

knighted by the Labour Government for his work on psychological testing and for making educational opportunities more widely available.

Burt broke new ground with the study of environmental effects, researching many family factors. In *The Backward Child*, published in 1937, he separated environmental variables of deprivation, such as poor nutrition and illness, from the innate factors that handicapped children. He advocated medical and dental examinations within the school setting to ensure that growth was proceeding normally and he was partly responsible for the daily distribution of milk to ensure adequate levels of vitamin D and the elimination of the scourge of rickets. In addition to malnutrition, he identified other physical causes of poor concentration such as defects of hearing, sight, speech, spinal curvature. He was one of the first to correlate sociological factors with poor school achievement, finding high relationships with residential indicators of infantile mortality, overcrowding, poverty, unemployment, family size, and the host of variables now only too familiar.

Burt was also interested in the factors affecting children at the top end of the scale. In *The Gifted Child*, published four years after his death, Burt focused on the damaging effects to a bright child, and to society, if the intelligence was not recognized because of the poverty of a child's background, inefficiency of the school system, or temperamental traits such as laziness in the child. Burt advocated special teaching and special classes, even special schools, for the gifted. He disapproved of the bias against the whole notion of giftedness manifested by equalitarianism.

Burt retired officially in 1950 but continued his scholarly activity. From 1947 to 1967 he was editor of the *British Journal of Statistical Psychology*. He also continued to publish data on the heritability of mental ability, including data from identical twins raised apart. These studies consistently suggested a large genetic contribution. Burt died in 1971 at the age of eighty-eight. His last book, *The Gifted Child*, was published posthumously in 1975.

The "Burt Affair" began in 1973 when Leon Kamin, then at Princeton University, claimed to have found discrepancies in some of Burt's figures, including an invariantly high correlation for IQ scores in twins raised apart. Despite the increase in sample size, from fifteen pairs in 1943 to fifty-three pairs in 1966, the correlation remained at a rounded 0.77. The scandal broke wide open with a story in the *Sunday Times* in 1976 headlined "Crucial Data Was Faked by Eminent Psychologist." The article charged not only that Burt had adjusted his data to suit his theory but that two of

Burt's collaborators "may never have existed." The controversy flared for about three years. Then Burt's biographer Leslie Hearnshaw, a respected historian of psychology with access to Burt's private correspondence and diaries, concluded that Burt was "guilty." In 1980, the British Psychological Society, refusing to conduct an inquiry of its own, endorsed the guilty verdict. Even Burt's hereditarian defenders, Hans Eysenck in London and Arthur Jensen at Berkeley, withdrew their support.

The battle seemed over with an enormous victory for the equalitarians. Then, suddenly, in 1989, Robert B. Joynson re-opened the case and concluded that the accusations of fraud were ill-founded and that Burt must be exonerated. Working independently, Ronald Fletcher completed the demolition of the evidence for the prosecution, concluding with a "not proven." Fletcher drew out the implications, describing how ideology, in alliance with a receptive popular journalism and the media, established itself as a powerful third force in scientific discourse.

The current approach makes an ideological leap from equality before the law to equality of social outcome.

Many of the details of the case are fascinating and disturbing. For example, there is the truly "flabbergasting" fact (Jensen's term) that many of Burt's papers were destroyed by his housekeeper almost immediately after his death on the advice of Liam Hudson, professor of educational psychology at Edinburgh University, one of Burt's most ardent opponents. As Jensen has stated: "Both Hudson's rush to Burt's flat right after his death and his advice to Burt's secretary-housekeeper to burn the stored data seem stranger than fiction. Surely it must be one of the most bizarre events in the whole Burt affair."

On the most important issues, the matter appears settled. As for the so-called "missing" research assistants, they have been found. Of even greater importance, there have now been six studies of monozygotic twins raised apart. As Jensen, among others, has pointed out, Burt's data are by no means out of line with other findings. If an average is taken of the five other studies, weighted by sample size, the result is 0.75, almost the same as Burt's supposedly faked correlation of 0.77. Findings such as these led Sandra Scarr to title her 1986 presidential address to the Behavior Genetics

Association "Three Cheers for Behavioral Genetics." She observed that "the war [between nature and nurture] is largely over." Scarr accepted that genetics underlay existing white social-class differences in IQ in the United States and Western Europe, although this may not have been the case for earlier generations when social mobility was more restricted. Large surveys have shown that a majority of experts believe that Scarr's opinion is correct and that the heritability of IQ in the American white population is about 60 percent, as reported by Mark Snyderman and Stanley Rothman.

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The experts have been more cautious, however, in the matter of race. In her 1986 address, Scarr rejected a genetic explanation because racial barriers were less permeable than class barriers. She interpreted her own work as having shown an environmental cause for racial variation. I do not know whether she changed her opinion as a result of the recent debate, in the journal *Intelligence*, over her follow-up of black seventeen-year-olds raised by white, middle-class parents, in which the black, white, and mixed-race children's IQ scores are more accurately predicted by their biological origin than by the environment in which they were brought up.

It may seem strange that Burt should have been considered a liberal in his day. It will be salutary to remind ourselves of just how different the world of the 1970s (when Burt died) was from that of earlier decades. Internationally, the political spectrum had shifted to the far left. Over two-thirds of the world was ruled by communist or socialist dictatorships. Socialism seemed to be the wave of the future. Social class was no longer the issue.

With the demise of European imperialism and decolonization, the large influx of non-white immigrants into Europe, the American Civil Rights Movement, and the Vietnam War, race and gender became substitutes for social class in the rhetoric of exploitation, oppression, and liberation. Opposition to hierarchy generated the concept of "political correctness." Among the most politically incorrect scientific possibilities are evolution-based, genetic differences in brain size and intelligence between the

racess, the sexes, and the social classes. Yet, most recent data sets have shown clear evidence for exactly these group differences. Men's brains weigh an average of about 100 grams (8 percent) more than do women's brains, even after correction is made for the differences in body size, and Asians and Asian-Americans average proportionately larger brains than do Europeans and European-Americans who average larger than do Africans and African-Americans. Although group differences were widely believed to exist in the nineteenth and early twentieth century, more recently it has been thought that differences disappear when corrections are made for body size and other variables.

In a decisive recent study of sex differences in brain size, C. Davison Ankney reanalyzed well-controlled autopsy data from Cleveland, Ohio, in 1992. Based on 1,261 individuals between the ages of twenty-five and eighty, he found that, after correcting for body size, a 100-gram difference between men and women and between European-Americans and African-Americans. Men averaged 1328 grams and women 1223 grams; European-Americans averaged 1320 grams and African-Americans 1230 grams.

My own research confirmed Ankney's results in the use of a stratified random sample of 6,325 United States Army personnel measured in 1988 for fitting helmets and uniforms. After statistically adjusting for height, weight, rank, and then sex or race, I found that men averaged 110 cm³ larger cranial capacities than women, and Asian-Americans averaged about 60 cm³ larger than African-Americans, with European-Americans intermediate. In this study the sex difference was larger than the race difference. Men averaged 1442 cm³ and women 1332 cm³ and Asian-Americans, European-Americans, and African-Americans were, respectively, 1416, 1380, and 1359 cm³. Military rank differences were also found. Officers averaged larger crania (1393 cm³) than enlisted personnel (1375 cm³), even after correcting for body size.

Subsequently, I examined world-wide data from the International Labour Office in Geneva. Head and body size figures were available from tens of thousands of men and women sampled from twenty different regions—East and West Africa, China and Japan, and European countries like Poland, France, Portugal, and Spain. After correcting for body size, cranial capacity for men averaged 160 cm³ more than women, and Asians about 70 cm³ more than Africans, with Europeans intermediate.

These studies do not stand alone. Since 1980 several analyses of group differences in brain size have been

published, from autopsy and endocranial measures as well as from those based on external head perimeter. Historically, brain size data going back 100 years show Asians and Europeans with larger brains than Africans. A small, but robust, relation has been firmly established between mental ability and brain size. The correlation between test scores and brain size estimated from magnetic resonance imaging ranges from 0.35 to 0.47 with an average at about 0.40, as reported by Nancy Andreasen and colleagues in 1993 in the *American Journal of Psychiatry*. This represents a substantial increment over correlations reported since the turn of the century between head perimeter and measures of intelligence which average about 0.20.

Brain size-IQ relationships show up early in life. In the National Collaborative Perinatal Project, 19,000 black infants had smaller head perimeters at birth than 17,000 white infants, although black babies were also shorter in stature and lighter in weight. By age seven, catch-up growth favored the black children in body size but not in head perimeter. Head perimeter at birth correlated with IQ at age seven in both the black and the white children.

Group differences in brain size mediate differences in mental ability. With regard to gender differences in brain size, Ankney has pointed out a paradox. Women have smaller brains than men but apparently have the same intelligence test scores. Ankney resolved the problem by proposing that the sex difference in brain size relates to those intellectual abilities at which men excel. Men do better on various spatial tests and on tests of mathematical reasoning.

As for race differences, reviews of the global literature show that people of European ancestry living in North America, Europe, and Australia generally obtain mean IQs of around 100. People of East Asian ancestry living in North America and the Pacific Rim typically obtain slightly higher means, in the range of 101 to 111. Africans from south of the Sahara, African-Americans, and African-Caribbeans (including those living in Great Britain) obtain mean IQ scores between 70 and 90.

However, the vexing question of whether IQ test scores are at all revelatory about racial group differences in mental ability remains. At bottom, the problem hinges on whether the tests are culture-bound. Although a large body of technical work has disposed of this problem at the level of psychometric expertise—the tests show similar patterns of internal consistency and predictive validity for all groups, and the same differences are to be found on relatively culture-free tests—doubts linger in many quarters. Novel data

on speed of decision making now show that the racial group differences in mental ability are pervasive. Cross-cultural investigations of reaction times have been carried out on nine-year-olds from five countries. In these tasks, subjects must decide which of several lights is on, or stands out from others, and move the hand to press a button. These responses take less than a second to make but brighter children make them significantly faster than less bright children. Richard Lynn found that oriental children from Hong Kong and Japan are faster in decision time than white children from Britain and Ireland, who in turn are faster than black children from Africa. Using the same tests on slightly older samples, Arthur Jensen has reported similar results in California.

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These are not popular findings. They conflict with many deeply held values. Let me then emphasize the importance of not exaggerating the findings. There is enormous overlap in the distributions. The United States Army data showed only an 8 percent difference separating the men and women in cranial capacity and only a 4 percent difference separating Asian-Americans from African-Americans. Also, in the Army data, black officers averaged a larger cranial capacity (1369 cm³) than white enlisted personnel (1366 cm³). Clearly, it is highly problematic to generalize from a group average to any particular individual.

As a result of carrying this research on brain size, I, like Cyril Burt, had my reputation sullied. There was a call for my dismissal by the premier of Ontario, a criminal investigation by the Ontario Provincial Police, a media campaign against me, disruptions at the university, and an as yet unresolved investigation by the Ontario Human Rights Commission. Stories of harassment and intimidation could be told by others, among them Hans Eysenck in Great Britain, Arthur Jensen at Berkeley, Tom Bouchard at Minnesota, Richard Herrnstein at Harvard, Linda Gottfredson at Delaware, and Michael Levin at City College of New York.

When Burt died in 1971, many people were gleeful. Equalitarian radicals were prepared to believe that Burt had committed fraud, long before any scandals were published. Charges of fraud were made all the time in personal conversation about the work then being published by Jensen and Eysenck. Charges of fraud are

commonly raised in this research context. No one wanted to believe that there was a genetic basis to racial differences in intelligence.

It was the issue of race more than anything else that drove the attack on Burt. At that time, Burt's data was the lynchpin of Jensen's and Eysenck's work on race and it almost had to be discredited. Thus it was Leon Kamin in America who was the first serious critic of Burt and then, of course, many others entered the fray, including journalists and television producers.

Today, the campus radicals of earlier decades are the tenured radicals of the 1990s. Some are chairmen of departments, deans of faculties, and vice-presidents and presidents of universities. The 1960s mentality of peace, love, and above all equality now constitutes a significant portion of the intellectual establishment in the Western world. The equalitarian dogma is more, not less, entrenched than ever before. Yet, it is based on the scientific hoax of the century.

It is interesting that the hoax about genetic equality has been perpetuated for so long. Certainly one factor has been wishful thinking. We would all like the world to be different than in fact it is. Few have been eager to recognize the extent to which genes dictate what we are and what we may become. The power of genes, however, will become progressively harder to deny as the Human Genome Project nears completion. Many prefer not to know, because ignorance allows hope while knowledge can destroy it. The best way to predict your IQ is to average the IQ of your biological parents. That prediction holds regardless of whether you were raised totally separated from your biological parents. Ultimately we will be able to predict IQ scores by taking a single cell from an embryo.

For some, work on the genetics of intelligence, and racial differences therein, challenges the Enlightenment assumption that knowledge is always better than ignorance. But scholars have accepted that the earth is

not the center of the universe, and that man's closest living relatives are the chimpanzees. We can yet affirm our common humanity by accepting our differences. The disparagement of Cyril Burt is the most extraordinary case of counterfeit charges in the history of academic psychology, if not all of science.

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