Some historical facts about IQ testing

Description

Kerannume short preface

This text is part of a book entitled *Intelligence: the battle for the mind. Environment or heredity? The crucial debate of shaping intelligence*, that contains the texts (and the respective responses) of H.J. Eysenck and Leon Kamin which, despite the title, speak primarily on IQ, its validity and value, social and scientific. It is a part of a polemical, yet much less so since one of the parties has become globally much more prevalent, debate about the relationship between the social and biological in its transmutation into a discussion of human behaviour—this debate concentrates on intelligence, through an elaboration of IQ and IQ testing.

What is at stake? Simply put, whether social classes and the classification of its members is inevitable and fixed or alterable and artificial. In other words, whether we are where we are in life because of our innate intelligence and our IQ, and therefore not much more can be done about it than accept our position.

Leon Kamin, among a group of Marxist and radical scientists, contests such premises and theories as totally bereft of objective and scientific validity and as inimical to the people’s emancipation from the ills of the present. In this short extract, he documents the historical origins of the invention of IQ testing, its foundations and purpose. It should be noted that IQ is a totally abstract, invalid and false quantification of intellectual abilities that even if had started as some sort of positive discrimination, its unsoundness, and that of any such programme or policy, is demonstrated in its use then and now. It is nothing but an ideological tool clothed in rubbish science so that it instils to those mostly concerned, the working class, the immutability of their position.

Some historical fact about IQ testing

> If. . .the impression takes root that these tests really measure intelligence, that they constitute a sort of last judgement on the child’s capacity, that they reveal ‘scientifically’ his predestined ability, then it would be a thousands times better if all the intelligence testers and all their questionnaires were sunk without warning in the Sargasso Sea.
> Walter Lippmann, 1922

Binet and the early testers

The first widely used intelligence test was created in France in 1905, by Alfred Binet. The public school authorities in Paris had asked Binet to

devise a method that might pick out in advance those children who were not likely to learn much from the reaching methods and curriculum of ordinary schools. These children could then be place in special classes.

The test pieced together by Binet put different sets of questions to children of different ages. The questions depended on the child’s general fund of knowledge, and some were intended to measure how well the child could reason and how sound his judgement was. The basic idea was that, on average, older children are able to answer more difficult questions than younger children. Thus any given child could be assigned a ‘mental age’, depending upon what question he could answer. Pierre, for example, would be given a mental age of eight if he could answer question passed by the average nine-year-old. Whether Pierre was said to be retarded, average or bright depended upon the relation between his mental age and his chronological age. Thus and 11-year-old with a mental age of eight was clearly retarded, but a dive-year-old who could answer the same questions was obviously bright.

To Binet’s great satisfaction, performance of his brief test correlated with teachers’ judgements about which children seemed bright in school and which seemed dull. The fact that test scores were related to success at school work was thought to demonstrate that the test in fact measured ‘intelligence’. This relation, which depended upon Binet’s use of school-like questions, is what made his test more useful and more influential than the so-called ‘mental test’ with which earlier psychologists had experimented.

Galton and the eugenics movement

Earlier interest in mental test had stemmed largely from the work in the 1860s of Francis Galton, who founded the eugenics movement. Galton believed firmly in the inheritance of mental ability and of just about everything else. The purpose of eugenics was to improve the human breed by encouraging the genetically superior to have many children, and by discouraging (or preventing) the genetically inferior from reproducing at all. To accomplish such a result, however, it would be necessary to devise tests and measurements that could identify the genetically superior and inferior. Hence the interest of Galton and his followers in measuring physical and psychological differences between individuals and between races.

The earliest ‘mental tests’, following Galton’s lead, concentrated on obtaining precise measurements, preferring tests of the kind used in laboratories to the kind used in schools. Laboratory tests make itpossible, for example, to determine a person’s reaction time to a fractionof a second by measuring how long it takes him to press a telegraph key inresponse to the sound of a buzzer. To the early experimenters it seemedreasonable that quickness in such simple ‘mental reactions’ might berelated to ‘quick-wittedness’ in general, or to ‘intelligence’. It soonbecame apparent, however, that precisely measured performances in suchlaboratory tasks did not even correlate with each other—far less withschool grades, or other assumed indices of intelligence. The experimentaltests inspired by Galton’s interest in eugenics came to a dead end. ButBinet, whose motives were practical and humanitarian, provided Galtonianswith fresh ammunition.

Binet’s ideas misused

The IQ test, in Binet’s view was not a measure of ‘innate’ or ‘inborn’ intelligence. Binet thought of his test as a diagnostic instrument which made it possible to pick out children whose intelligence was not developing properly, who could then be given courses in what he called ‘mental orthopaedics’. The point of such courses was to increase the intelligence of children who had scored low on IQ tests. Binet’s attitude is clear: he firmly rebuked those who believed that ‘the intelligence of an individual is a fixed quantity, a quantity that one cannot augment. . . . We must protest and react against this brutal pessimism.’

Early racism

Those who first translated and used Binet’s test, both in the United States and in England, were convicted Galtonians, however. The knew, even before date had been collected, that intelligence had to be largely hereditary. Thus Lewis Terman, who introduced the Standford-Binet test to the United States in 1916, wrote that IQs in the 70 to 80 range were ‘very, very common among Spanish-Indian and Mexican families of the Southwest and also among negroes’. He continued:

> Their dullness seems to be racial , or at least inherent in the family stocks from which they come. . . The whole question of racial differences in mental traits will have to be taken up anew. . . The writer predicts that when this is done there will be discovered enormously significant racial differences in general intelligence, differences which cannot be wiped out by and scheme of mental culture.
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> Children of this group should be segregated in special classes. . . They cannot master abstractions, but they can often be made efficient workers. . . There is no possibility at present of convincing society that they should not be allowed to reproduce, although from a eugenic point of view they constitute a grave problem because of the unusually prolific breeding.

There was no doubt in Terman’s mind that differences in the IQ scores of

different racial groups were produced by genetic differences between the races, And IQ differences within a particular racial group were also determined by genes. Terman believed that members of the upper social and economic classes possessed superior genes, which they passed on to their children. The same point of view was clearly expressed by another early translator of Binet's test, Henry Goddard in 1920. 'The fixed character of mental levels', Goddard argued, caused the unending plight of the degenerate poor and of the unemployed. This 'fixed' mental level was to be measured by Binet's test—a view entirely opposed to Binet's own.

In England, the early mental tests made extravagant claims about the hereditary basis of test performance even before they became acquainted with Binet's. As early as 1909 Cyril Burt administered a set of crude tests to two very small groups of schoolchildren in the city of Oxford. The children at one school were the sons of Oxford dons, Fellows of the Royal Society and such like, while at the other school they were the sons of ordinary townspeople. Burt maintained that the children of higher social class did better on the tests—and that this demonstrated that intelligence was inherited. By 1912 Burt could write that 'the evidence is conclusive' for the inheritance of mental capacities. The fact that parents provide children with their environments, as well as with their genes, seems to have made no impression upon Burt, or upon Terman or Goddard.

Sterilisation laws

The uncritical belief in the power of heredity, linked to the advocacy of eugenic ideas, was already widespread when Binet's test appeared. More than 30 American states followed the lead taken by Indiana in 1907 in passing eugenic sterilisation laws which provided for the compulsory sterilisation of, among others, criminals, idiots, imbeciles, epileptics, rapists, lunatics, drunkards, drug fiends, syphilitics, moral and sexual perverts, and 'diseased and degenerate persons'. The laws declared as a matter of legal fact, that the various defects of all these offenders were transmitted through the genes. The wholly unscientific fantasies of the eugenicists encouraged the naive claim that sterilisation of offenders would eliminate the undesirable traits from the population. Fortunately, sterilisation laws were not often enforced. When they were, the victims were poor.

Immigration quotas

In the hands of eugenicists like Henry Goddard, the new science of mental testing was also employed to reduce unwanted immigration into the United States by the peoples of southern and eastern Europe. Goddard administered Binet's test in translation, together with some 'non-verbal' or 'performance' tests, to a number of 'average immigrants' arriving at New York. His results claimed to show that 83 per cent of Italians were 'feeble-minded' There was no doubt in Goddard's mind—or in the minds of other American mental testers—that tests producing such results measured 'innate ability'.

This naive belief had far-reaching consequences. During the First World War, the American army administered the new mental tests—basically

modifications of Binet’s pioneer procedures—to literally millions of men. After the war the National Academy of Sciences published the average scores of immigrant soldiers from different European countries. The highest scorers were immigrants from England, Scotland, Canada and Scandinavia, the lowest from Russia, Italy and Poland. Mental testers concluded that ‘Nordics’ were genetically superior to the ‘Alpine’ and ‘Mediterranean’ races. The claim was confidently repeated, this time by Brigham and others, that the traits measured ‘native, inborn intelligence’. The Army data were cited repeatedly in congressional and public debates which led to the passage in 1924 of the overtly racist ‘national origin quotas’ designed to reduce immigration by the genetically inferior peoples of southern and eastern Europe.

The educational scrap-head

The IQ test has also played an important part in the American school system—especially in assigning lower class and minority children to dead-end classes for the ‘educable mentally retarded’. The fact that a child has a low IQ score has been misinterpreted to mean that the child does not have the capacity to learn school subjects. The IQ test played and even more central role in England, where it formed the basis for the selective education system introduced after the Second World War. On the strength of Cyril Burt’s enthusiastic argument that a test given to a child at the age of 11 could measure its ‘innate intelligence’, it was decided to use the results of the tests administered to 11-year-olds to ‘stream’ children into one of three separate—and far from equal—school systems.

‘Intelligence’, Burt wrote in 1947, ‘will enter into everything the child says, thinks, does or attempts, both while he is at school and later on. . . . If intelligence is innate, the child’s degree of intelligence is permanently limited. No amount of teaching will turn the child who is genuinely defective in general intelligence into a normal pupil.’ This pessimistic claim—so antithetical to Binet’s point of view—was later put into even plainer language when Burt equated intelligence with ‘educable capacity’. ‘Capacity’, he stated in 1961, ‘must obviously limit content. It is impossible for a pint jug to hold more that a pint of milk; and it is equally impossible for a child’s educational attainments to rise higher than his educable capacity permits.’ In other words,, an IQ test could measure a child’s capacity for education, and it was obviously nonsensical to try to force more education into the child’s head than could be fitted in, as indicated by his score.

The notion that a so-called intelligence test can somehow measure innate ‘capacity’ or ‘potential’ was considered and explicitly rejected in 1975 by a committee of testing experts appointed by the American Psychological Association’s Board of Scientific Affairs. The Cleary committee declared:

> A distinction is drawn traditionally between intelligence and achievement tests. A naive statement of the difference is that the intelligence test measures capacity to learn and the achievement test measures what has been learned. But items in all psychological and educational tests measure acquired behaviour. . . An attempt to recognise the incongruity of a behavioural measure as a measure of

> capacity is illustrated by the statement that the intelligence tests contain items that everyone has an equal opportunity to learn. This statement can be dismissed as false. . . There is no merit in maintaining a fiction.

Politics and the nature-nurture debate

The points made by the Cleary committee seem so obvious that it is hard to understand how any psychologist could believe that IQ tests measure innate intelligence. Perhaps we should look at a scientist's social and political beliefs, for they are likely to influence the way he interprets IQ data. Pastore has shown that eminent scientists who stressed the 'nature' side of the nature-nurture controversy tended to be politically conservative, while those who stressed the 'nurture' side tended to be liberal.

We have seen that the pioneers of IQ testing in the United States were enthusiastic advocates of eugenic policies, and believers in the innate basis of IQ test scores, even before they collected data. The 1903 notebook of Cyril Burt, then a 20-year-old Oxford undergraduate, contains the following neatly handwritten essay:

> The problem of the very poor—chronic poverty: Little prospect of the solution of the problem without the forcible detention of the wreckage of society. . .preventing them from propagating their species.

With beliefs of that sort, it is not surprising that Burt could interpret the fact that slum children did poorly on Binet's test as a sign of their genetic inferiority—and as proof that the test miraculously measured inborn ability.

The hereditarian argument

There are, of course, a number of facts cited by the hereditarians to support their claim that IQ is largely determined by the genes. To begin with, it is clear that IQ scores tend to run in families. Parents with high IQs tend to have children with high IQs, just as parents with low IQs tend to have low-IQ children. The closer the biological relationship between two member of a family, the more they are likely to resemble each other in IQ. Children of different socio-economic classes have different average IQs. Children of manual workers tend to have lower IQs than children of professors and executives—a fact that has convinced some professors that the they are genetically superior to manual workers. To some theorists, the fact that blacks in the United States have a lower average IQ than do whites is still further evidence that tests must be measuring inborn ability.

The most recent wave of interest in the genetic basis of IQ was largely provoked by concern over racial question in the United States. Professor Arthur Jensen argued in an influential article in 1969 that American 'compensatory education' programmes—aimed primarily at improving the scholastic performance of poor black children—had not worked. The failure of such programmes was, in his view, inevitable, for the data of Cyril

Burt, described described by Jensen as ‘the most satisfactory attempt’ to measure the heritability of IQ, had indicated that about 80 per cent of the variation in whites’ IQs was genetic. It was plausible to suppose, therefore, Jensen argued, that the difference in average IQ between blacks and whites was caused by the genetic inferiority of blacks. Finally, the argument went, differences with a highly heritable basis could not be eliminated by environmental treatments such as compensatory education.

Fallacious logic

The pages that follow will examine critically the evidence used to demonstrate the high heritability of IQ among whites. It is extraordinarily weak. Indeed, what was thought to be the clearest evidence—Burt’s—is now recognised to be fraudulent. We should note at the outset, however, that even if the claim that IQ is highly heritable among whites were true, the remaining steps in Jensen’s argument are entirely fallacious. Though it may seem intuitively correct to assert that a highly heritable trait cannot be changed by environmental treatment, it is simply not the case. Weak eyesight, for example, may be highly heritable, but it is easy to correct with spectacles, and we do not regard an eye test as measuring some fixed and unchangeable ‘capacity to see’. And take the case of phenylketonuria, a rare form of extreme mental retardation which is caused by the inheritance of a single gene. The defective gene results in a metabolic defect which in turn affects development of the brain and nervous system. Yet is is simple to prevent mental retardation from occurring in a child born with the gene by feeding it a special diet with as little phenylalanine as possible. There is no reason, then, to believe that the role of genes—whatever it may be—in *producing* a trait is in any way related to the ease (or difficulty) of *modifying* that trait by environmental methods.

The concept of heritability

There us an unfortunate tendency for many readers—and for some scientific writers—to misunderstand the technical concept of ‘heritability’. To assert that the heritability of IQ is 0.80 per cent is *not* to assert that 80 per cent of John Smith’s IQ is inherited, while 20 per cent is produced by environment. Rather, it is to claim that—in some particular population, at some pint in time—about 80 per cent of the variation in IQ, or IQ *differences* among individuals, is determined by genetic differences. Note, for example, that the heritability of two-eyedness in human populations is close to zero. That does not mean that the possession of two eyes is not determined by our human genes. What it means is that there is very little variation among us in the number of eyes we possess, and that any such variation is not related to individual genetic differences. The vast majority of people with only one eye, or none, have lost eyes through environmental accident, and not through transmitted genetic defect.

The heritability of a trait in a human population is, to say the least, very difficult to estimate, some would say impossible. When an estimate is made, it applies at best to a particular population a particular time. The heritability of the same trait may be very different in other human populations, or in the same population at later (or earlier) times. The heritability of a trait is not some ‘law of nature’. It is a population

statistic, rather like the death rate in Madagascar during the fourth century—which tells us nothing about the death rate in North America today.

The elementary confusion in Jenseism

Finally, it is important to realise that even if the heritability of a trait is high within each of two populations, that in no way allows us to conclude that a difference in the average value of the trait between the populations is genetically caused. This elementary confusion lies at the root of what the *New York Times* christened ‘Jenseism’. The basic claim by Jensen was that the ‘fact’ of high IQ heritability *within* both the white and black populations made it likely that the 15-point difference in average IQ *between* the two groups was cause by the genetic inferiority of blacks. The fallacy in this claim –even if Jensen’s alleged ‘fact’ were true—has since been pointed out by many geneticists and psychologists. The fallacy can me made obvious by a simple example.

We fill a white a sack and a black sack with a mixture of different genetic varieties of corn seed. We make certain that the proportions of each variety of seed are identical in each sack. We then plant the seed from the white sack in fertile Field A, while that from the black sack is planted in barren Field B. We will observe that within Field A, as within Field B, there is considerable variation in the height of individual corn plants. This variations will be due largely to genetic factors (seed differences). We will also observe, however, that the average height of plants in Field A is greater than that in Field B. That difference will be entirely due to environmental factors (the soil). The same is true of IQs: differences in the average IQ of various human populations could be entirely due to environmental differences, even if *within* each population all variation were due to genetic differences!

The following pages will demonstrate that many of key ‘facts’ asserted by Jensen, Eysenck and other hereditarian IQ theorists are simply not true. Perhaps more important, it should be clear at the outset that even if the asserted facts were true, the implications drawn from them do not follow logically. We are entitled to conclude that today, as in the past, untrue fact and fallacious conclusions tend to reflect the social and ideological biases of the theorists.

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