

SPECIAL REVIEW

R. TRAVIS OSBORNE, CLYDE E. NOBLE and NATHANIEL WEYL (Editors): *Human Variation. The Biopsychology of Age, Race, and Sex*. Academic Press, New York, 1978. 392 pp. £12.65.

It is only very rarely that a book consisting of individual chapters written by different authors, and on quite different topics, will be chosen for a special book review, but this book is an exception in many ways. Its theme is central to the general contribution this journal seeks to make; in addition it deals with "the biopsychology of age, race, and sex", as the subtitle indicates, and these topics have been practically shunned by most academic writers over the past 2 or 3 decades. As the authors point out "notoriously in the domaine of race, but increasingly in discussions of sex and age, conformity of opinion is expected in the halls of ivy as it is in legislative and judicial chambers". They go on to say: "Usually such social pressures are justified in the name of humanism, or by invoking an ever-lengthening list of *a priori* 'rights'. However, a philosophical pragmatism inclines us to the view that humanitarian goals are achieved most readily and completely when one's society liberates and optimizes the pursuit of empirical and theoretical knowledge."

The volume is almost entirely devoted to a discussion of empirical and experimental facts, but theoretical issues are not avoided, and some of these are of particular interest. Much of it deals with genetics, and here the position taken by the editors is as follows: "For us, the question of determining the relative proportions of phenotypic variance in selected human attributes that may be ascribed to innate, acquired, interactive, and covariate sources under given conditions is entirely a matter of data and theory—not of ideology, politics, authority or forensics". This is well-said, and the book fulfills all the expectations raised by the preface.

A brief list of authors and topics may whet the appetite of potential readers. Ingle writes on "Fallacies in Arguments on Human Differences"; Rife deals with "Genes and Melting Pots"; Jensen writes on "Genetic and Behavioral Effects of Nonrandom Mating"; Horn discusses "The Nature and Development of Intellectual Abilities"; Osborne has a long chapter on "Race and Sex Differences in Heritability of Mental Test Performance: A Study of Negroid and Caucasoid Twins"; Lehrke writes on "Sex Linkage: A Biological Basis for Greater Male Variability in Intelligence"; Shuey summarises the literature on "Own-Race Preference and Self-Esteem in Young Negroid and Caucasoid Children"; Lynn summarises the literature on "Ethnic and Racial Differences in Intelligence: International Comparisons"; Noble has a very long chapter on "Age, Race, and Sex in the Learning and Performance of Psychomotor Skills"; and finally Darlington contributes an epilogue on "The Evolution and Variation of Human Intelligence."

All the summaries of different topics are very well and competently done, but of course major interest will be attracted by chapters that offer something new. An obvious example is the chapter by Lehrke, by profession a clinical psychologist, on sex linkage as an explanation of the frequently observed greater male variability in intelligence. Usually this fact is explained in environmentalistic terms; there are more male geniuses because women are chained to the kitchen sink, and there are more male mental defectives because society imposes the duty of bread winning on males, and if they fail, society takes an action which it might not take in the case of females, whose mental defect is only noticeable to their husbands.

Lehrke makes a very good case for an alternative interpretation, namely that some of the genes contributing to intelligence are located on the sex chromosome, so that for females level of intellectual functioning would depend on the average of two alleles, whereas for males the second allele would be missing. This theoretically should give rise to differences in variance, and these of course are actually observed. Lehrke in fact gives a very good discussion of this whole literature.

One deduction of the hypothesis is that if there are major genes relating to intelligence on the X-chromosome, then the correlations of test scores for mother-daughter, father-daughter and mother-son would be somewhat similar, as in each case, the parent and child have one X-chromosome in common. The correlations between father and son should be lower since they have no X-chromosome in common, and the brother-sister correlations should be intermediate since they have an X-chromosome in common half the time. The data actually bear out this deduction quite strikingly. Other deductions are also made, and tested against data from literature, and support the hypothesis.

Lehrke also deals with the objection that the differences in variance between the sexes are relatively small, and would have no social repercussions. This is due of course largely to fact that only some of the genes loading for intelligence would be located on the sex chromosome. Lehrke points out that in actual fact this objection is not tenable. Suppose, he says, that the standard deviation of an intelligence test, nominally 16 points as for the Binet, should actually be 16.5 points for males and 15.5 points for females. (This is actually a little less than some of the differences observed in fact.) "On this basis, there would be expected to be 37% more males than females with IQs below 68, and the same would be true of IQs above 132". In effect, very slight differences in variance can result in marked differences at the tail ends of the normal curve, and such differences would be predicted under the hypothesis of sex linkage of intellectual traits. This is an outstanding chapter in an outstanding book, and the results and arguments should certainly be pondered by readers interested in the social consequences of intellectual differences.

Other authors who offer novel material are Arthur Jensen, Clyde Noble, and David Rife; of particular interest are perhaps the discussions of assortative mating, inbreeding and outbreeding in Jensen's chapter. The important thing about assortative mating of course is its effect on heritable traits in the population. "Since assortative mating increases the variance of a trait in the population, for example, it has been estimated that the present level of assortative mating for intelligence in England and the United States, assuming that this level of assortative mating has existed for several generations, may account for over the half the frequency of persons above 130 and 4 out of 5 of those with IQs over 145, and there are approximately 20 times as many persons

above an IQ of 160 as we would find if there were no assortative mating for intelligence". As Jensen also points out, such effects may greatly affect the character of a population in terms of its intellectual resources. Little more need be said to impress on the reader the importance of assortative mating, and a better understanding of what it implies.

Enough will have been said to impress on the reader the importance of this book; it is quite unique in the field, and the fact that each author has been given ample space to develop this theme makes the contributions all the more important. The level is perhaps a little high for undergraduate readers, but any one with some understanding of behavioural genetics will have no difficulty in following the arguments.

In case it should be thought that there is nothing to criticise in this volume, let me dispel this illusion by mentioning just one of many points that might be raised, but which do not detract from the general excellence of the volume. Noble deals a great deal with pursuit rotor learning, and particularly the reminiscence phenomenon. He throughout treats this as a case of Hullian inhibition, although he rejects the work inhibition hypothesis Hull originally put forward. But the evidence is now pretty conclusive that inhibition theories of this kind do not work with reminiscence data, and that some kind of consolidation theory is much better able to deal with the data. This does not detract from the interest of the factual data presented, but it makes the theoretical discussion seem rather old-fashioned and unconvincing.

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