

## REVIEWS

**H. J. Butcher. HUMAN INTELLIGENCE. London: Methuen, 1969, 343 pp.**

Intelligence is a topic which evokes strong emotions; at Berkeley, for instance, students recently agitated for the removal of A. R. Jensen from their faculty because he wrote in the *Harvard Educational Review* that Negroes do less well on intelligence tests than comparable members of other ethnic groups. Again, in some quarters, schemes of compensatory education for deprived children, such as Project Headstart, have been immoderately criticised because they failed to produce worthwhile increases in I.Q. of the children involved. One reason for this over-reaction is probably ignorance, even among well-educated lay people, of the present state of knowledge about intelligence. This is not surprising, for a study of most of the important problems connected with the subject calls for expertise in a number of disciplines as disparate as genetics, statistics, cybernetics, computer-technology and neurology as well as psychology and psychometry. Few people have broad enough backgrounds to encompass the whole field and to integrate the findings from all parts of it into a coherent whole. Of the few capable of so doing, none has felt it worth-while to communicate the results of his syntheses in a form which is readily assimilable by relatively unsophisticated readers such as doctors, administrators or teachers; or by students at undergraduate or master's level.

This new book by Butcher goes a long way towards meeting a need in that it provides a comprehensive survey of most of the significant aspects of the nature, development and measurement of intelligence at a level much above that possible in a general textbook of educational psychology but below that of a specialised technical work like Guilford's (1967), *Nature of Human Intelligence*. It is commendably eclectic, and is impartial in those areas where, traditionally, American and British psychologists have placed different emphases and interpretations. The characteristic British slant towards biological rather than sociological interpretations, for example, is to be found here in a chapter on "The Influence of Heredity and Some Related Questions" but it is balanced by another on "Social and Cultural Influences." Only an extreme hereditarian or environmentalist will complain of the way Butcher uses the conceptions of Hebb and Cattell to provide labels for genotypic and phenotypic intelligence.

The first of the eleven chapters starts with an historical account, based on the well known writings of Burt, on the development of "Intelligence" as a scientific concept and goes on to show how, in spite of controversies about it, the enormous importance of intelligence as an indispensable variable in psychological and educational research re-

mains. The second chapter examines the various classificatory schemes put forward by factor-analysts to illustrate answers to the question, "One intelligence or many abilities?" The author finds the hierarchical pattern of factors associated chiefly with the work of Burt and Vernon to be superior to the others for most purposes, saying, "Other things being equal, measurement of a general factor will account for more variation in performance and provide prediction over a wider range of tasks than measurement of a major or minor group factor."

Chapter 3 stresses the relevance of the thinking of such workers as Eysenck, Klausmeier and Harris, and Gagné in the study of individual differences in relation to learning processes. The next discusses reactions against the limited range of types of cognitive tests used until fairly recently and the attempts to establish genuine differences between creativity and intelligence. This is a most valuable chapter; the author is very familiar with the field and has sifted the voluminous literature very effectively. Many students find the analogies which people like Pribram have drawn between the operation of electronic computers and the 'intrinsic' and 'extrinsic' areas of the brain difficult to follow. The chapter "Brains and Machines" gives an unusually lucid account of this whole area and shows how a kind of thinking has developed which is influencing research and study in many other fields of cognition.

It seems a long step from computers to Piaget, but Butcher makes it easily, even pointing to connections between the two. He gives a succinct summary of the relevant

work of the Geneva school and its adherents. Readers who have not studied developmental psychology will, however, need also to refer to some of the other sources listed. The same is true of the section on psychological measurement and test evaluation and of the survey of intelligence tests.

The last chapter, headed "Ability, Personality and Achievement," outlines the findings of Terman's monumental 30-year follow-up study of gifted children showing that intelligence, as measured by conventional tests, is still the most stable, predictive, psychological variable which can at present be measured, in spite of considerable individual fluctuations. It then goes on to discuss the attempts to relate individual differences in motivational and other personality qualities to intellect. This is an area where Butcher himself has been particularly active but, in spite of exhaustive discussion of the main research literature, he is forced to acknowledge that, while only about half of the variation of intellectual performance is accounted for by measured intelligence, we have as yet little equipment which will help us account for the other half.

This is an excellent book for the level of reader for which it is written, clear, concise and lacking in jargon. It has a first class bibliography and sets of recommended references listed in order of priority. For the student who wants to know what factor analysis is about, but who is not going to work in the field, there is a lucid, explanatory appendix.

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