Book Reviews

An Approach to Human Nature

The Inheritance of Personality and Ability. Research Methods and Findings. RAYMOND B. CATTELL. Academic Press, New York, 1982. xxiv, 452 pp. $47.50. Personality and Psychopathology.

Suppose there exists a Great Man, whose many books and papers range across an entire discipline. Suppose the Great Man has had a lifelong off-and-on interest in a specialized and rather tricky subfield bordering on that discipline. Suppose he publishes a book in his eighth decade summarizing that subfield. What might such a book be like? Obviously, it could be a landmark, an intellectual treasure. It could, of course, also easily turn out to be rather an embarrassment.

Well, let us cast R. B. Cattell as the Great Man, psychology as the major discipline, human behavior genetics as the bordering subfield, and *The Inheritance of Personality and Ability* as the book. In this case, both the hopes and fears are realized. The book is often indeed a treasure, but sometimes it does evoke a bit of a wince.

The Inheritance of Personality and Ability is the first full-dress, modern technical treatment of its topic at book length. Its bibliography extends to 25 pages of references. They are current. More than half are subsequent to 1970; 11 percent are dated in the 1980's or in press. The book is subtitled "Research Methods and Findings," and it contains lots of both. It will be useful to consider matters of method first.

Some years ago the German Gestalt psychologist Kurt Koffka stated in brilliantly simple fashion the task of the psychology of perception: it is to explain why things look as they do. The psychologist who is concerned with personality and ability has a task that can be equally simply stated: to explain why people are as they are. It has seemed to many, including Cattell, that a logical early step in this task is to establish the relative influence of the genes and the environment in accounting for how people vary along some of the major dimensions by which psychologists characterize human intellectual capacity and personal style. Indeed Cattell argues that a proper study of learning (that is, of environmental influences on behavior) *requires* a prior or concurrent involvement with the genetics of behavior: "as the shape of the oceans delimits the land, and the map of land delimits the shape of the ocean, so a proper grasp of genetics tells us more precisely the shape of what we have to explain by learning" (p. 187).

Somewhat over half the present book is devoted to the discussion of methods by which this mapping might be accomplished, ranging from such broad conceptions as "path learning analysis" and the "genothreptic splitting of developmental curves" to disquisitions on the technical details of adjustment for errors of measurement and trait fluctuation. The major emphasis is on Cattell's multiple abstract variance analysis (MAVA). This method involves setting up equations in which the observable variation within and among families of monozygotic and dizygotic twins, adoptive and biological siblings, and so on are expressed as functions of abstract genetic and environmental variances and covariances, permitting—under appropriate conditions—solution for the abstract quantities.

In their broad conception, these methods contain abundant intellectual riches. What there are of embarrassments mostly arise in the details of their implementation. For example, the MAVA equations as given in the book include correlations that are assumed to remain constant despite variation in the standard deviation of one of the correlated variables, a constancy that would only be possible with a rather remarkable compensatory variation in the underlying regressions. Equally oddly, the among-family equations contain within-family components that do not vary with family size, although the contribution of within-family variation to the observed variance of family means ought to be less for larger families. Actually, the MAVA equations as presented appear to be appropriate only for the case of two-child families, although they are stated to be general. Most of the data Cattell uses do in fact consist of two-child families, so the embarrassment is more a theoretical than a practical one.

Likewise, the presentation of others' empirical findings is excellent in the large but often less so in the small. It is excellent in the sense that it gives a good exposure to the relevant literature; the reader who follows down all the paths that Cattell opens up will be well-informed indeed. But he or she will occasionally be surprised at the difference between what Cattell seems to say that a particular source says and what it does in fact say. Also, there are many typographical errors and minor slips in the text and tables. This is not the ideal book for the lazy scholar who relies heavily on unchecked secondary sources.

One major feature of the book is three chapters reporting results from a substantial new MAVA study, results brought together from scattered recent journal articles, some still in press. Because only final outcomes are reported here, and given some of the uncertainties in the MAVA equations by which they were reached, the careful reader will want, again, to consult the original sources before deciding where to believe and where to reserve judgment. It is, however, surely a convenience to have this important study now summarized in one place.

Finally, it must be cautioned that this book is not an easy read. From time to time there is a wonderfully apt and elegant bit of exposition or turn of phrase, but there is a lot of heavy going in between. Cattell is very much his own man, and it often requires a real effort to build the bridges connecting his ideas to those of others and to sort out the brilliant from the vacuous. It is, however, a very instructive effort, well worth a try.

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Genetics in Humans

Population and Biological Aspects of Human Mutation. Papers from a symposium, Albany, N.Y., 1980. ERNEST B. HOOK and IAN H. PORTER, Eds. Academic Press, New York, 1981. xviii, 436 pp., illus. $34.50. Birth Defects Institute Symposia.

At a time of growing concern (and occasional uninformed debate) over the possible biological effects of environmental pollutants, this volume offers a useful summary of current research and unsolved problems regarding human mutation. The book contains 23 papers and three appendixes devoted to methods for assessing the effects of environmental